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ORIGINAL CONTRIBUTIONS

Volume 20 August, 1953 Number 8

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1. Rogers, M. P., and Gray, C. L.: *Am. J. Digest. Dis.* 19:180, 1952.

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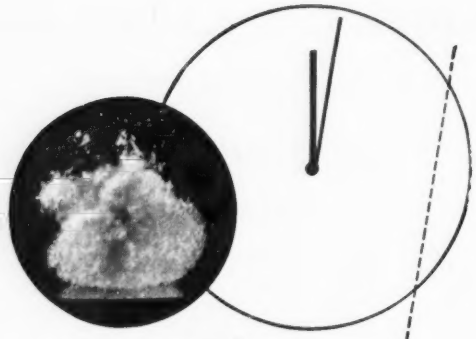

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CORRELATION OF ROENTGENOLOGICAL STUDIES WITH CERTAIN CLINICAL SYMPTOMS IN PEPTIC ULCER

FRANZ J. LUST, M. D., New York City.

THE ROENTGENOLOGICAL demonstration of a deformed duodenum and the presence of a niche are the well known signs of a duodenal ulcer. Its visualization in many cases has been improved by the accepted technique of spot films and mucosal studies. However, we think that the roentgenological examination would give us much more information if evaluated properly. Therefore, we have approached the subject of the duodenal ulcer from the clinician's point of view. That means, we have tried to correlate the complaints of the patient with the roentgenological findings, and we think that these studies can give us many new hints as to the diagnosis and the treatment.

The main complaints in duodenal ulcer are:

1. Localized pain.
2. Sour stomach and heartburn.
3. Cramps.
4. Fullness.
5. Nausea and vomiting.
6. Constipation.

Of course, all the psychic symptoms connected with the malady cannot be studied roentgenologically.

1. Pain: The pains in duodenal ulcer are localized. During fluoroscopy the abdomen is palpated and a tenderness is generally felt over the diseased area. Films taken during fluoroscopy in upright position give a record of what the fluoroscopist saw (Film 1). The deformity may not be visualized immediately in the routine position. Here, spot films are indicated (Fig. 2). By the correct application of this technique a good outline of the cap and its pathology can be obtained. (Fig. 3, 4) Spot films are of special value in cases of one sided deformities or rapid peristalsis. The technique was originated by H. H. Berg in 1926. Nothing new has been added since his classic publication. The idea of the spot film is to take small films over the area of pathology, rotating the patient in such a way as to get views of all sides of the cap. During this part of the examination, the areas of local pains are studied, usually revealing the site of the main pathology. The importance of this careful search is of course to find the main pathology. Localized pain over an ulcer is one of the signs of the activity of the process. If the area of tenderness does not correspond to the site of the duodenum, which may seem to be deformed, an ulcer of a different part of the stomach may be found. (Fig. 5) One of the sequelae of duo-

Submitted Jan. 23, 1953.

Fig. 1: Duodenal ulcer. Film taken in erect position, showing the position during fluoroscopy. Slight deformity of the cap.

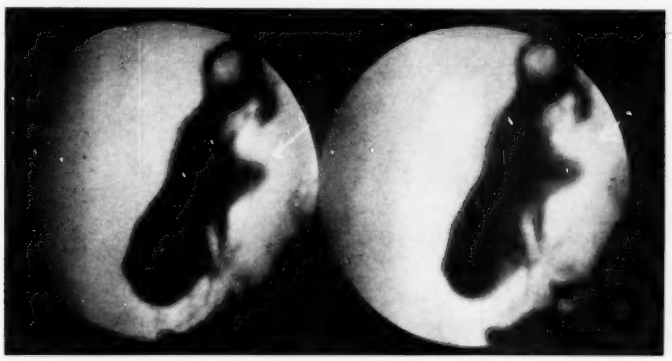

Fig. 2: Spot film of the cap, showing the deformity on the rear wall. (see fig. 1) Local tenderness.

Fig. 3: Duodenal ulcer. Fluoroscopic aspect.

Fig.5: The cap is shortened. Tenderness high in the epigastrium, where an ulcer near the cardia is visible.

denal ulcer may be its perforation into the gall bladder (Fig. 6).

2. Sour stomach and heartburn. It is obvious that the chemical degree of gastric acidity cannot be seen on films. However, it is possible to visualize the amount of gastric secretion after a given time. For this purpose, we have photographed the patient's glass with the barium suspension on the same film with the filled stomach. This film is taken in erect position, approximately twenty minutes after the beginning of the examination. The glass has nearly the same diameter as an average stomach. In the glass, the fluid level above the heavy shadow of contrast substance represents the amount of sedimentation. In our tests, this is only a narrow layer. In the stomach, a much greater amount of fluid can be seen, lying above the heavy contrast shadow, comprising sedimentation plus gastric secretion (Fig. 7). As the sedimentation with our contrast medium is practically negligible, the fluid found in the stomach represents the gastric secretion after the stimulus of the barium. This secretion is increased in ulcer cases (Figs. 7-9), as is easily demonstrated. From the degree of hypersecretion, demonstrated roentgenologically, we are able to judge the clinical status of the secretory function of the stomach. As hypersecretion and hyperacidity mostly correspond to each other, the roentgen film partially replaces an analysis of the gastric contents, a factor welcomed by patients and doctors alike.

By studying the mucosa of the stomach, we fre-

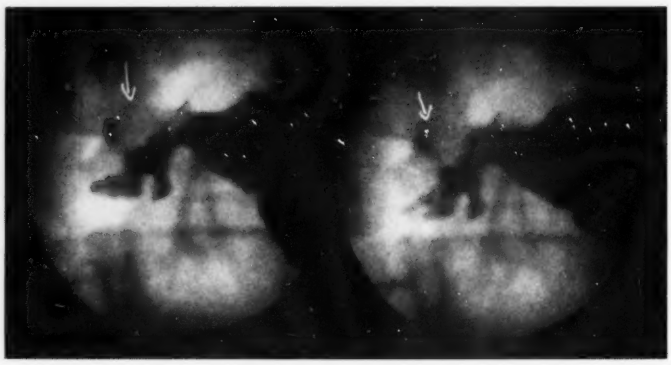

Fig. 4: Spot film of fig. 3. Deep ulcer with scarred cap. Local tenderness.

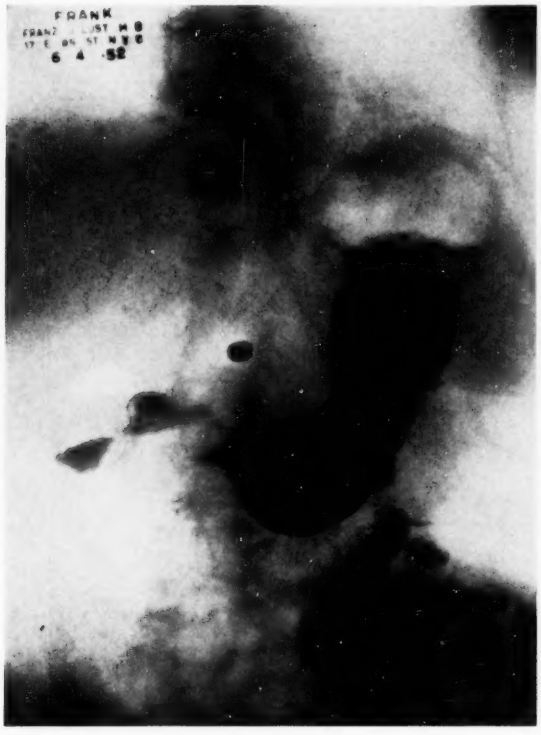

Fig. 6: Duodenal ulcer perforated into the gallbladder.

Fig. 8: Duodenal ulcer. Hypersecretion above the intragastric barium.

Fig. 7: The barium suspension in the glass shows hardly any sedimentation 20 min. after ingestion. There is a layer of fluid above the intragastric barium, representing the gastric secretion.

Fig. 9: Duodenal ulcer. Large amount of gastric secretion.

Fig. 10: Swollen, tortuous gastric folds.

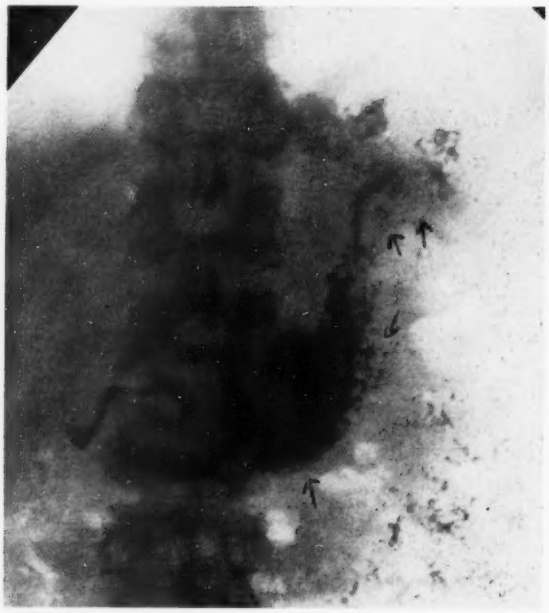

Fig. 12. Mottling due to the presence of mucus.

Fig. 11: Mottling due to the presence of mucus. The barium and mucus do not mix well.

quently see in duodenal ulcer a swelling of the folds (Fig. 10). The rugae are broad, tortuous, and increased in their turgor. Very often, they cannot be flattened out by palpation. An important fact is the appearance of "mottling" (No. 11, 12). This is due to the fact that barium and mucus do not mix easily. The presence of an increased amount of mucus in the stomach can be visualized on films. Therefore, the roentgenological examination helps to study the gastric secretion in two respects: firstly its quantity, secondly its quality.

3. Cramps. The cramps in the epigastrium are mostly due to spasm of the pylorus. The spasms present themselves on the film as an increased distance between the cap and the gastric antrum. (Fig. 13) The mucosa in this region is normal.

4. Fullness. This symptom is generally due to the delayed emptying of the stomach. For this test, the examination six hours after intake of barium is of great importance. There are many stomachs which show a perfectly normal peristalsis and gastric emptying during the beginning of the examination. However, later, they reveal a large gastric residue (Fig. 14). If food stays so long in the stomach, the patient, generally, complains of nausea and epigastric fullness and distress hours after eating. These stomachs are not adequate in their function. In the complication of pyloric pathology with duodenal ulcer, the first stage is that of pylorospasm, the second stage is that of delayed gastric emptying.

5. Vomiting. As soon as fibrosis of the pylorus sets

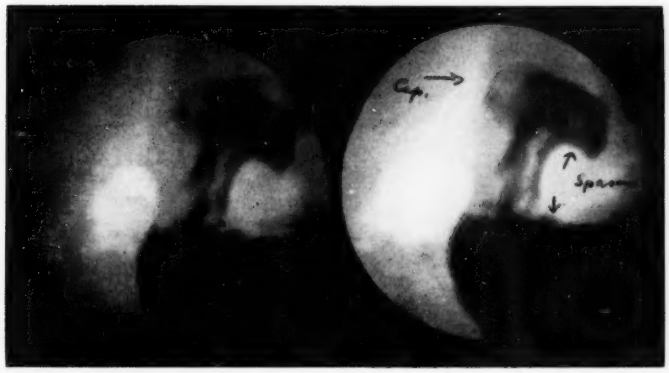

Fig. 13: Pylorospasm. First stage of the complication of pyloropathology. Note the wide distance between cap and antrum. No change of the mucosa.

Fig. 14: Gastric six hour residue. Second stage of the complication of pyloropathology.

Fig. 15: Pylorostenosis. 24 hours p.e.

in, a further narrowing in this region occurs. An organic pyloric stenosis has developed. The roentgenological findings are those of an atonic, large stomach (Fig. 15) and a large, 24 hour residue (Fig. 16). In these cases the ulcer can rarely be well demonstrated, even after prolonged fluoroscopy. A pyloric stenosis with a 24 hour gastric residue is the final stage of pyloric complication. The first two stages are, of course, amenable to medical treatment; however, the last one has to be taken care of by surgery, for it is a condition which tends to get worse within foreseeable time.

6. Constipation. One of the most distressing complaints of the patient with an active ulcer is that of constipation. The stools are described as hard, marble-like, and difficult to expel. The roentgenological equivalent of this symptom can be found at the 24 hour examination. There is no continuous filling of the colon (Fig. 17), the barium column is broken off into several round or oval-shaped masses, which are

Fig. 16: Pylorostenosis. 24 hour gastric residue. Third stage of complicating pyloro-pathology.

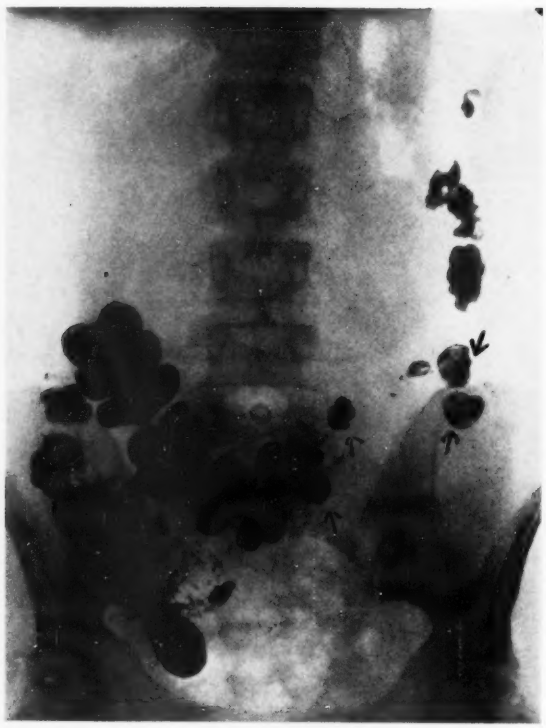

Fig. 17: Constipation in duodenal ulcer. The fecal matter are irregularly distributed. The shadows are very intense.

very intense in their shadow. The barium appears clumpy and is irregularly distributed throughout the colon. Apparently, this is due to an increased re-absorption of fluid in the colon, which dries out the stools or the barium. Such roentgenological findings indicate the necessary therapy.

SUMMARY

This is a new approach to the roentgenological studies in duodenal ulcer. The examination is based on the correlation of clinical and roentgenological findings. The visualization of the deformed duodenum or a niche, is of prime importance. However, it is known that the altered outline of the duodenum is constant, due to the fibrosis, independent of whether the symptoms are present or not.

The main clinical signs have been selected and the roentgenological equivalent of them discussed. These signs are: 1) Localized pain. It is stressed that the pains should be found over the diseased area. The spot film method is of great help (H. H. Berg, 1926). 2) Sour stomach and heartburn: the roentgenogram reveals the amount of gastric secretion. It is possible to differentiate between acid and mucous secretion. Therefore, the roentgen film visualizes the quantity as well as the quality of the gastric secretion. 3) Complicating pyloropathology is discussed, the 3 stages causing the clinical symptoms of cramps. 4) Fullness and nausea, 5) Vomiting. The 6th sign of constipation has a definite roentgenological equivalent. The roentgenological examination is able to help in the diagnosis and the therapy of the ulcer and its complicating symptoms.

CLINICAL NOTES

HORACE WENDELL SOPER, M. D., F. A. C. P., St. Louis, Mo.

DYSPEPSIA NERVOSA. Practically all of the patients suffering from this disease have acquired the habit of belching gas, often with regurgitation of some food contents. The acid content of the stomach thus produces an esophagitis and a burning sensation results. Furthermore, the cardiac nerves are irritated and the patient has attacks of palpitation and irregularity of the heart action. Treatment consists in teaching the patient the habit of practicing deep breathing and stretching exercises. Deep inhalation while exercising, holding the breath as long as possible and exhaling through the mouth. A bland high vitamin diet is given them. Many patients quit belching in two weeks' time and their symptoms disappear. The diet may then be increased.

Gastric and Duodenal Ulcer. The old Sippy method consisted of frequent feedings of pasteurized milk. I soon found that pasteurized milk still contained many of the germs present in raw milk. These germs are a factor in the production of gastritis as well as ulcer. For many years I have used the evaporated milk, excluding entirely the pasteurized and raw milk from the diet lists.

Treatment of Hematemesis by the Retention catheter. The nasal tube is immediately passed into the stomach and a 250 cc Luer syringe filled with normal saline solution which is injected, thus breaking up the blood clots and withdrawing them through the tube. This is continued until the stomach clots are entirely removed. The tube is left in the stomach and if recurrent bleeding occurs with the blood bright red in color it means immediate surgery and in all of these cases a bleeding artery has been located. Of course, blood transfusions and intravenous glucose, 10 per cent solution, in normal saline are frequently employed and the fourth day after, when no more blood oozes through the tube it can be passed down through the pylorus and duodenal feeding instituted. The colon must be cleansed of bloody feces by an enema and utilized for normal saline proctoclysis.

Chronic Constipation. Nearly all of these patients are addicted to purgative drugs and enemas. In a normal colon they should be stopped. Agar-Agar and some of the derivatives of plantago should be started. The patients are instructed to attempt defecation after breakfast. At the time of defecation deep intermittent pressure should be made with the hands over the descending, iliac and sigmoid flexure, taking deep breaths at the same time. In the large atonic colon I found that the fluid extract of cascara is the best remedy. It is very bitter and is, therefore, given in capsule form before each meal, usually about twenty drops. As time goes on the patient finds he can reduce the dosage. I have seen some severe cases which finally required only five drops before each meal. In the very spastic form the mineral oil retention enema should be employed, using it at bedtime, passing the rubber catheter four inches into the rectum and attaching a 3-ounce bulb syringe filled with the mineral oil to it. Six ounces is the usual dosage.

The mineral oil enema is of great value in the treatment of early ulcerative colitis. It is not a culture medium and discourages the growth of bacteria. It is also of great value in the treatment of chronic diverticulosis. The oil will reach the cecum in one hour's time. All roughage in the diet should be avoided.

Vitamins. I find so many patients who have taken the synthetic vitamins for years and still suffer from malnutrition. All that is required to restore them is a diet of high vitamin content and brewers' yeast powder. Few persons consume enough Vitamin B in their diet. The yeast powder contains all the Vitamin B complex. Furthermore, the yeast continues its fermentative action in the small intestine and facilitates the absorption of all other vitamins and end products of food digestion. It is a splendid nerve tonic and a good adjunct in all forms of anemia. I concluded that the synthetic vitamins could not be depended upon. This opinion was later confirmed by the research work of Professor A. J. Carlson of Chicago and Professor Drummond of England.

Occult Blood in the Feces. The continued presence of occult blood in the feces usually indicates the development of malignancy as we know that any ulcerative process in the gastro-intestinal tract may become malignant. Frequent occult blood examination should be made in all of these cases. Of course, we must remember that occult blood may come from nasal cavities or gingivitis. Excluding these sources, the continued presence of occult blood means malignancy and early surgery should be employed.

Pernicious anemia. Before the advent of Liver Therapy we had no treatment for this disease; since that time I have observed many cases treated both by the ingestion of liver and the extracts orally and by injections. The blood was kept at a high normal level but as time advanced the patients exhibited the symptoms due to atherosclerosis such as coronary arterial disease, Buerger's disease, cerebral hemorrhage, etc. Finally I employed Ventriculin (dried hog's stomach), HCl, and a diet of low cholesterol and high vitamin content; under this regimen, the patients maintained a good blood picture, and I have had them under observation for many years without the development of the arterial damage so prominent in the group under liver therapy.

Cholesterol. Timothy Leary's great work proved that cholesterol was the chemical that produced atherosclerosis. It begins to be deposited in the arteries about the age of 35 years and continues progressively. The child and young adult should continue to live on a diet high in cholesterol content. It forms a framework of the body cells. After the age of 35 low cholesterol diet should be instituted. We are indebted to Bridges for a complete table of cholesterol content in practically all foodstuff. Here are some of his figures:

Submitted Jan. 31, 1953.

	Mg. per 100 g.
Egg yolk	2647
Brains	3700
Kidney	3400
Liver	3400
Pancreas	3120
Thymus	2300
Salmon roe	2200
Caviar	295
In contrast:	
Beef contains only	76
Mutton	37
Potatoes	2.6
Spinach	5.5

All fruits and vegetables show small percentage figures. I have used this table clinically and found it to be of tremendous value in cases of arterial hypertension, cirrhosis of the liver, diabetes, gall stones, cataract, gout and degenerative arthritis. All fat foods and cream desserts are rich in cholesterol content.

We must remember that thyroid and iodine are cholesterol solvents.

THE LOCALIZATION AND MANAGEMENT OF THE ACUTELY SWALLOWED FOREIGN BODY IN THE ESOPHAGUS

MAURICE FELDMAN, M. D., Baltimore, Maryland.

THIS PAPER is primarily concerned with the management and roentgenologic procedure of localizing foreign bodies of the esophagus. The roentgen localization of nonopaque foreign bodies in the esophagus is at times very difficult and one must often depend upon the clinical manifestations to determine the necessity for esophagoscopic exploration. Usually the condition is acute and the patient is in such great discomfort that in almost every instance the foreign body must be meticulously sought after and its removal pursued at the earliest possible time. Radiable foreign bodies, on the other hand, present little difficulty in localization. Overlying anatomic structures such as calcifications which are normally seen in the cervical portion of the esophageal area must be eliminated.

Clinically, there are two characteristic features which stand out prominently. (1) The persistence of pain or discomfort in the esophagus, and (2) the persistent localization in a circumscribed area, so that the patient can place a finger on the level where the foreign body is lodged. This is an important clinical sign which should be given every consideration in the localization of foreign bodies. Usually it is found in the area in which the patient has complained of a sticking sensation. The vast majority of foreign bodies in the esophagus are located in the cervical portion where there is normally some narrowing of the lumen. The narrowing is chiefly noted in two areas, (1) at or near the cricopharyngeus, and (2) at the level of the sternal notch or thoracic inlet. Most of the foreign bodies are lodged in these two areas of the esophagus.

In a perusal of the literature the impression is gained that in most instances it is impossible to localize nonradiable foreign bodies by the roentgen examination. There is no doubt, however, that the localization of esophageal foreign bodies often challenges the acumen and vigilance of the roentgenologist and the esophagoscopist. It is now possible to present a new approach to an old problem by (1) localizing the area clinically, (2) combining the roentgenologic procedures, (3) teamwork with close cooperation of the roentgenologist and esophagoscopist, and (4) the preparedness at all times to remove the foreign body when located. A prerequisite for the approach of the foreign body problem is the cooperative teamwork of the roentgenologist and esophagoscopist, which has not been sufficiently stressed as essential in the management of these cases.

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The fact that a plain roentgenogram does not reveal evidence of a foreign body does not eliminate it. Furthermore, the administration of barium in the hope that some of it will adhere to the foreign body is not too reliable. On the other hand, if one observes closely, the adhered barium may show a hang sign in the localized area where the foreign body is lodged. This is a fleeting sign, although not always reliable, which can be duplicated on repeated swallowing. Theoretically, the use of an opaque mixture which has some adhesive qualities may temporarily adhere to the foreign body. It is important first to have the patient localize the area so that attention is focused on the foreign body as the opaque mixture passes over it. It must be stated here, that in most instances the administration of a barium meal is of little help, but it should nevertheless be used in cases of nonradiable foreign bodies in the esophagus. It is a good plan to utilize both the fluoroscopic and film methods of examination. In the fluoroscopic examination one should step up the voltage between 6 and 8 Kv. in order to obtain a more brilliant light, otherwise the foreign body is more likely to be missed. One must be cautioned, however, that when the voltage is increased the exposure to the operator is likewise augmented, therefore the timing must be shortened and a brief interval should elapse before another fluoroscopic exposure is made. The operator should use every precaution to protect himself, even during the short periods of exposure.

Many opaque substances have been recommended to coat the foreign body, such as barium, bismuth, Rugar, and lipiodol. We have used a barium Cholex- (soya lecithin, egg yolk and glycerin) mixture which seemed to have adhesive qualities and satisfactorily coated the foreign body temporarily. Owing to the excessive amount of saliva secreted in these cases all of the several opaque substances are washed away quickly, so that when using this method attention must be focused on the limited area of the foreign body because the opacity is only momentarily seen.

Although the difficulties in localization of foreign bodies in the esophagus arise often enough to remind us of the inadequacy of our methods, one of the most important procedures utilized in our experience has been the use of a small pledget of fluffed cotton impregnated with barium. In many cases where the foreign body could not be demonstrated, we have found this procedure most helpful. The pledget of cotton is fluffed loosely so that it may more easily become attached to the foreign body. A tight wad of cotton may defeat the purpose for which it is given and may slide over the foreign body in its descent through the esophagus.

A conspicuous instance is represented by the following case. A woman swallowed a fish bone while eating her dinner and immediately complained of pain and discomfort in the upper esophagus. A plain roentgenogram and fluoroscopic examination was made without revealing the fish bone. A few swallows of both thick and thin barium were administered, with negative results. This was followed by the swallowing of a pledget of fluffed bariumized cotton which beame attached to the fish bone and it was removed immediately afterward.

This case is a striking example of the efficiency in demonstrating and localizing nonopaque foreign bodies in the esophagus. The swallowing of a bariumized pledget of fluffed cotton enables one to localize the foreign body so that it can be removed more efficiently. Our own experience indicates that this method has consistently given the most accurate information in cases of nonradiable foreign bodies. This procedure often affords a means of yielding information in the localization of the foreign body that may not otherwise be obtained. One must be cautioned that it is not advisable to use this method unless there is good teamwork and the esophagoscopist is at hand ready to remove the foreign body. This teamwork is stressed because the administration of the pledget of cotton produces greater discomfort, pain, dysphagia, with increased effort in swallowing, thus necessitating quick action for its removal. The swallowing of the pledget of cotton also introduces the additional factor of some degree of occlusion of the lumen of the esophagus at the site of the foreign body. Usually it is only necessary to have the patient swallow one pledget of bariumized cotton, but if this is unsuccessful it may be repeated several times. We have now used this method in over 100 cases and have not found any contra-indications in its use, provided all precautions are taken and an esophagoscopist is part of the team.

Although some authorities have rejected the method of the utilization of swallowing a pledget of bariumized cotton, their arguments do not seem to be valid. We recognize certain limitations and contra-indications in the use of this method, but nevertheless have found it to be a highly valuable procedure in demonstrating nonradiable foreign bodies. In our experience of over 100 cases we have not observed any untoward signs or symptoms following its use. We have always been able to remove the foreign body together with the pledget of cotton attached to it.

Theoretically, there is the possibility of producing increased pressure on the foreign body, aided by active and increased swallowing activity, and motion of the esophagus may cause the foreign body to pierce the tissues with ensuing perforation. Another complication that may occur is that the pledget of cotton may break off the portion of the foreign body which projects into the lumen of the esophagus and leave a small piece imbedded in the esophageal wall. In this instance the foreign body is much more difficult to remove and secondary complications may readily occur. For these reasons it is always essential when using the pledget of cotton method of localization that the esophagoscopist be at hand ready to immediately remove the foreign body.

The X-ray examination of tiny fish and chicken bones is generally unsatisfactory. Although these bones often do not cast a dense enough shadow to be visible, it is probable that in many instances the lack of demonstration is due to faulty roentgen technic or overshadowing structures. It is always best to have a prior knowledge of what type of foreign body the patent has swallowed. This is of tremendous aid to the roentgenologist, who generally knows which ones are radiable and therefore uses the best procedures to demonstrate them. In the acute case of a swallowed foreign body the indirect method of localization is not generally helpful. Although secondary changes, such as swelling of the prevertebral tissues and the presence of gas in the tissues occur rapidly, these signs are not generally noted in the immediate stage but usually come on later if the foreign body is not removed quickly.

SUMMARY

The localization and management of foreign bodies of the esophagus are best carried out by close teamwork of the roentgenologist and esophagoscopist. The acute swallowing of a foreign body is often an emergency which requires immediate attention. All the clinical and roentgenologic procedures are often necessary to localize these foreign bodies. Regardless of whether or not it is demonstrable, attention to the clinical manifestations is highly important. Although the esophagoscope can be used as a diagnostic measure as well as for the removal of the foreign body, some care should be given in its use. First, it is important to localize the foreign body if possible before esophagoscopy so that the operator may have a prior knowledge of its location. Second, the esophagoscopist may not see the foreign body or may push the instrument over or beyond it, or the instrument may force the foreign body deeper into the tissues. Occasionally the esophagoscope may loosen and disengage the foreign body and it will either be swallowed or brought up with or after the esophagoscope is withdrawn. In our hands the use of the bariumized pledget of fluffed cotton was found to be a safe procedure. We have not experienced any complications following its use in over 100 cases. One must, however, be cognizant of the possibility of its contraindications and complications, but with close teamwork with the esophagoscopist, who is prepared to remove the foreign body immediately afterwards, and only under these circumstances do we feel that it can be safely recommended as a routine measure.

CLINICAL EXPERIENCES WITH A NEW SPASMOLYTIC DRUG, J. B. 305

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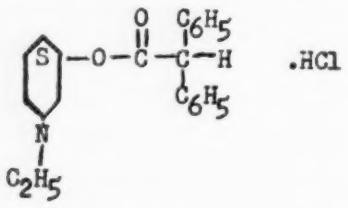
THE PREPARATION of a new series of antispasmodics, substituted acetic acid esters of N-alkyl-3-hydroxypiperidine, was described in 1952 by Biel, Friedman, Leiser and Sprengler (1). Preliminary screening (1) indicated appreciable antiacetylcholine activity of these compounds on excised guinea pig ileum. Subsequently Chen and Beckman reported one of these compounds, JB 305 (N-ethyl-3-piperidyldiphenylacetate hydrochloride) having the structure,



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to be an effective and relatively non-toxic agent for relaxing the sphincter of Oddi, duodenum and ureter in dogs (2).

These authors reported the acute intravenous and oral LD_{50}'s of JB 305 in mice to be 26 and 1040 mg/kg. in comparison to 21.5 and 690 mg/kg. for Trasentine (2). In anesthetized dogs no appreciable changes in blood pressure were observed following 4 mg/kg. doses of JB 305, this dose being sufficient for reliable inhibition of the sphincter of Oddi (2). Similar doses were reported by Ewing and Seager (3) to provide significant ganglionic blocking effects with moderate, transient changes in blood pressure in dogs.

In view of its good antispasmodic activity and its low toxicity observed in animals, we decided to use JB 305 clinically in gastro-intestinal disorders and in conditions where anti-acetylcholine activity might prove beneficial.

Table I represents a summary of observations on 65 patients in whom JB 305 was administered. These were private patients, clinic patients, and residents of the Drexel Home for the Aged.

TABLE I
SUMMARY OF CLINICAL TRIALS WITH J. B. 305

No.	No. of Cases	Age in Years Variation	Ave.	Diagnosis	Dosage of JB 305	Clinical Effects	Side Effects	Results of Other Drugs Used
1.	4	57 - 69	63	Cardiospasm	10-20 mgm q.i.d.	Good to excellent, cardiospasm was much less or disappeared in all cases.	None	None
2.	2	56 - 58	57	Diaphragmatic hernia	50 mgm q.i.d.	Excellent	None	None
3.	2	48 - 54	51	Duodenal ulcer	20 mgm q.i.d.	Excellent	None	None
4.	9	42 - 83	58	Biliary dyskinesia, cholelithiasis and hypertonicity of g.i. tract.	10-50 mgm q.i.d.	Excellent in 4 cases, good in 1 case, fair in 1 case, poor in 3 cases.	None	In patients with poor results Banthine, atropine, and nitroglycerine, were ineffective. Belladonna with phenobarb. gave good results in case in which 305 had no effect.
5.	1	62	62	Regional ileitis	50 mgm q.i.d.	Excellent result for 4 weeks and then recurrence.	None	Banthine not tolerated. Belladonna & phenobarbital gave fair result.
6.	15	24 - 84	40	Spastic colon. Intestinal hypertonicity (2).	50 mgm q.i.d.	Excellent in 7 cases, good in 3 cases, poor in 5 cases.	None	One case with excellent result with 305 had no result with Banthine. In one case with poor effect, Banthine, atropine, and Antrenyl had no effect.
7.	1	30	30	Prolapse of gastric mucosa	100 mgm q.i.d.	Fair	None	Belladonna, Trasentine, phenobarb. no effect.

8.	2	74 - 81	78	Abdominal cramps, constipation, arteriosclerosis	50 mgm t.i.d.	None	None	No results with belladonna, Trasentine, phenobarb.
9.	3	75 - 79	77	Bladder spasm. Cystitis. Abdominal cramps. Parkinson's disease.	50 mgm q.i.d.	None	None	No results with nitroglycerine, phenobarb., Gantrisin, Terramycin, Trasentine, papaverine.
10.	6	70 - 82	74	Parkinson's disease	50 mgm t.i.d.	None	None	Artane had some effect; no effect with Rabellon, stramonium, Benadryl.
11.	1	72	72	Arthritis deformans	50 mgm t.i.d.	None	None	None
12.	14	62 - 92	78	Chronic coronary insufficiency	50 mgm t.i.d.	Excellent in 2 patients, poor in 12 cases	None	In the 2 cases with excellent results,the nitroglycerine requirements were diminished markedly. These 2 patients are on 305 for 8 months now. In the other 12 cases fair to good results were obtained with nitroglycerine and phenobarb.
13.	5	74 - 79	76	Bronchial asthma	50 mgm t.i.d.	Poor	None	Poor results with aminophyllin suppositories, nitroglycerine, phenobarb., Rutaminal, Rutin-Vit. C.

RESULTS

Table I shows that excellent and good relief was obtained in most cases where gastro-intestinal spasm was involved. These conditions include cardiospasm, diaphragmatic hernia, duodenal ulcer, biliary dyskinesia and cholelithiasis, regional ileitis, and spastic colon. In one case of cholelithiasis with migraine headaches, the acute gallbladder colic was relieved and, much to our surprise, the migraine syndrome was markedly alleviated. In 34 patients with gastro-intestinal disease (Table I, No. 1-7) the drug produced excellent and good results in 24 patients, fair results in 2, and poor or no results in 8 patients. In one negative case each of group No. 4, 6 and 7 severe psychoneurosis was present. In group 8, both patients had severe atherosclerosis, probably also in their mesenteric arteries.

In diseases not related to the gastro-intestinal tract listed in Table I, No. 8-13, it is seen that the drug had little or no apparent clinical effect. The 2 cases of angina pectoris which obtained relief with JB 305 leave no definite conclusion, but both, patient and physician, have felt that it was the most helpful one of the great number of drugs that had been tried. The 2 patients have now been on JB 305, 50 mgm t.i.d., for 10 months. No changes in blood and urine nor in the general status of these 2 patients indicate chronic toxicity effects.

Most notable of all was the promptness of action of the drug, and the absence of side effects, which are so commonly seen with a number of other spasmolytic agents. In most patients investigated, blood counts, blood chemistry and urine analysis were performed before and after medications with JB 305. In no case were toxic effects of the drug noticed

SUMMARY AND CONCLUSIONS

1. JB 305 is a new spasmolytic drug that should be added to the list of useful gastro-intestinal antispasmodics.

2. Its effectiveness was found to be particularly noticeable in spastic and functional gastro-intestinal complaints.

3. No toxic effects of the drug were noticed.

4. The noticeable absence of side effects and its fast action makes it a desirable drug.

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A COMPARATIVE STUDY OF BANTHINE AND OF ANTRENYL IN THE TREATMENT OF DUODENAL ULCER

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THE ROUTINE medical management of peptic ulcers, consisting of diet, physical and mental rest, sedatives, antispasmodics, antacids, and psychotherapy, yields good results in a large percentage of cases. However, due to the difficulty for ambulatory and working patients to follow such a routine, there has been a constant search for a newer and simpler method. It was hoped that Banthine or other drugs would supply the answer. The following study was undertaken to compare the effects of Banthine and of a new similar drug, Antrenyl, in the treatment of active duodenal ulcer.

MATERIAL

A total of fourteen patients with proven duodenal ulcers were selected at random from private patients entering our offices. All ulcers were proven by X-ray and the patients presented symptoms and physical findings compatible with this diagnosis. There were 10 males and 4 females, ranging in age from 30 to 55 years. While the duration of the ulcer history varied, the presenting complaints in all were acute, representing either a new ulcer or a recurrence in an old ulcer. No patients had indications for surgery at the time treatment was begun. The drugs used were Banthine (Methantheline bromide, B-diethyl-aminoethylxanthene-9-carboxylate methobromide) and Antrenyl* Ciba 5473, Oxyphenonium bromide, phenyl-cyclohexyl-oxyacetic acid esther of diethyl-amino-methylbromide). Most of the patients were treated first with Banthine. Following a sufficient period of time to test the effects of this drug on the patient and on the ulcer, the second drug, Antrenyl, was given. The duration of therapy with each of the two drugs was 8 weeks.

METHOD

Since the purpose of this study was to try out a simple method for treating ulcers, the following routine was used: Patients were permitted to continue their usual activities with the advice that they obtain adequate rest at night. For the first 7 to 10 days they were placed on a soft diet, and then they were placed on a regular diet with the exception of fried, greasy and highly seasoned foods. The dose of each drug was adjusted according to the tolerance of the individual patient. Banthine was given in average doses of 100 mg. every six hours day and night. The dosage of Antrenyl ranged from 12½ to 50 mg. every six hours day and night. Occasionally ¼ or ½ grain of phenobarbital was given to control emotional patients. No other medications or restrictions were used, since we wanted a routine that was simple and easy to follow, and one that would be an index of the effectiveness of these drugs alone.

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*We are obliged to Ciba Pharmaceutical Products, Inc., for supply of Antrenyl.

RESULTS AND COMMENTS

TABLE I

Case No.	Age	Sex	BANTHINE			ANTRENYL		
			Symptomatic Relief	Healing	Side Effects	Symptomatic Relief	Healing	Side Effects
1	40	M	None	None	3+	Fair	None	4+
2	30	F	Excellent	None	2+	.....	.....	.....
3	34	M	None	None	4+	None	None	4+
4	52	M	None	None	3+	Fair	None	3+
5	38	M	None	None	2+	Excellent	Complete	1+
6	38	F	Good	None	2+	None	None	3+
7	44	M	None	None	1+	None	None	2+
8	55	M	Excellent	None	2+	None	None	4+
9	33	M	Good	None	2+	None	None	4+
10	41	M	.....	.....	....	Good	None	1+
11	43	M	Excellent	None	1+	.....	.....	.....
12	44	F	Good	None	2+	.....	.....	.....
13	48	F	None	None	4+	None	None	4+
14	36	M	Excellent	None	2+	.....	.....	.....

Summary, 13 Patients:			Summary, 10 patients:		
Excellent	4	None Healed	Excellent	1	One Healed
Good	3		Good	1	
None	6		Fair	2	
			None	6	

Table I presents the results and side effects of the two drugs. Our criterion for effectiveness was either complete healing of the ulcer crater, or symptomatic relief and disappearance of irritability of the duodenal bulb. Side effects were graded from 1+ to 4+, i.e., from least to most severe.

It is not the purpose of this study to discuss the pharmacology of Banthine or of Antrenyl. Suffice it to say that they are anticholinergic agents which exert a strong atropine-like action on the effector organs of the parasympathetic system and possibly a blocking effect on the autonomic ganglia (1). Since 1943, when Dragstedt and Owens (2) perfected the supradiaphragmatic approach to vagotomy, there has been widespread interest in an attempt to find the true indications for this operative procedure. Medical men and surgeons alike agree, however, that most ulcers are medical problems and there has been a renewed search for a drug which is essentially a cholinergic blocking agent with prolonged action and with specificity for site of action (3); in other words, a drug which would produce a "medical vagotomy."Such have

been the hopes with Banthine. Antrenyl has properties similar to Banthine and it was used here to compare its effectiveness with the latter drug.

When one uses healing as the criterion, our results were generally poor with both drugs. Slightly over 50 per cent of the patients derived symptomatic relief, but only one presented complete healing. Side effects were marked, with dryness of the mouth, constipation, and difficulty in urination in males, being the most prominent. Blurring of vision was experienced by most patients, but this either cleared spontaneously or when the dosage was decreased. Constipation was marked and at times difficult to control, requiring enemas on several occasions. Difficult urination was observed in young, as well as in old males and, while no urinary retention resulted, this difficulty lasted as long as the drugs were continued. One patient finally required a gastric resection, revealing a markedly scarred duodenal bulb with an active ulcer penetrating posteriorly. One of the patients, who obtained symptomatic relief from Banthine, had severe emotional problems and it was our opinion that the simplicity of the routine made it appealing to her, and thus provided impetus for relief of symptoms. She exhibited no evidence of healing of the ulcer, but she was able to maintain relief on 100 mg. three times daily after six weeks, and any smaller dose would result in recurrence of symptoms. One patient who obtained relief with Antrenyl did well on 12½ mg. every six hours, but could not tolerate 25 mg. The side effects with Antrenyl were practically identical with those from Banthine.

All patients were not followed with X-ray, but were checked fluoroscopically in our offices. Except for one patient, little change was noted in the appearance of the duodenal bulb. This patient was X-rayed after two months on Antrenyl, and complete healing of the ulcer had occurred.

SUMMARY AND CONCLUSIONS

1. Fourteen patients with proven active duodenal ulcers were treated with Banthine and Antrenyl, the two drugs being similar in action. The patients were ambulatory and continued their daily activities. Outside of slight dietary changes early in the routine and small doses of phenobarbital for short periods, no other therapy was used. This was done to test the effectiveness of these drugs alone.

2. Our results indicate that Banthine can produce symptomatic relief in certain cases of proven duodenal ulcers without producing healing of the ulcer crater. Antrenyl produced symptomatic relief in four cases, and one of them was the only incidence in the entire series which demonstrated healing.

3. Banthine and Antrenyl did not prove to be the final answer to the medical treatment of duodenal ulcer. However, we feel that, until the ideal drug or method for the treatment of peptic ulcer will have been found, Antrenyl and Banthine have a definite place in ulcer therapy.

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INVESTIGATION OF ENTERIC INFECTIONS IN THE CARIBBEAN AREA. 2. DISTRIBUTION OF SALMONELLA STRAINS IN CURACAO, JAMAICA AND COSTA RICA

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AS A SECOND part of the inquiry into the causes of diarrhea in the Caribbean area, it was decided to study the distribution of Salmonella strains. The regions chosen for the survey were of necessity selected with several factors in mind. It was desirable to work in regions of the Caribbean differing as much as possible in their social, economic and anthropologic structure as well as climatic conditions, to obtain as complete a picture as possible. At the same time it was advantageous to choose areas in which Salmonella studies had not previously been done. Lastly, the choice depended to a great part on the willingness of the local authorities to cooperate.

The Institute of Inter-American Affairs favored such a study and under their auspices Costa Rica became one of the countries to be surveyed. On the other hand, the authorities of the British West Indies showed so much interest in this type of work that it was decided to not only perform a survey but to establish a Salmonella-Shigella typing center there as well.

While information on the occurrence of Salmonella in Curacao has been published (1), the strains having been isolated by the Government Public Health Labora-

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tory in Willemstad and typed at the Hektoen Institute for Medical Research in Chicago by the first two of the authors of this paper, standard methods for the isolation of enteric pathogens in Curacao differ to some extent from those used elsewhere (2). Because of the close cooperation established for many years with the group in the Netherlands Antilles, and its advantageous geographic location, the island of Curacao was included for comparative purposes.

The investigation proper concerned itself with the comparison of microorganisms isolated in all three localities during the same period of time, i.e., between January and June, 1952.

GEOGRAPHICAL REMARKS

To emphasize, and in some cases to explain, the differences in findings in the three areas investigated, further remarks are presented pertinent to the work performed and to the geographical location and population.

Curacao is part of the Netherlands Antilles, just off the north coast of Venezuela, with an area of about 140 sq. miles and about 100,000 inhabitants of European, African and Asiatic origin. The island is extremely dry and the inhabitants engage themselves in the oil industry, shipping and commerce. All local bacteriologic work was carried out by the Government Public Health Laboratory (Laboratorium Openbare Gezondheidsdienst) without outside help except that the isolated strains were shipped for final typing.

Jamaica is a British Crown Colony near the center of the Caribbean, with an area of 4,400 sq. miles and a mixed population of about 1,500,000 people of predominantly African origin with many East Indians and Chinese. About 130,000 persons inhabit the capital, Kingston. Material was available from Kingston General Hospital, schools of the eastern half of the island, the cities and environs of Port Antonio and Port Maria, the Child Welfare Association clinic and through the courtesy of private physicians, as well as from the entire Veterinary Services of the island and from the abattoir in Kingston. The laboratory center was at the Veterinary Laboratory of the Island Department of Agriculture in Hope Gardens. The typing center established in that laboratory was transferred to the Department of Pathology and Bacteriology of the University College of the West Indies in Mona, Jamaica, in July, 1952.

Costa Rica is a constitutional republic in Central America, with an area of about 16,000 sq. miles; a predominantly European population of about 850,000 of whom 280,000 live in the capital, San José. It is essentially an agricultural country with an increasing dairy farming. The climate of the central plateau (where San José is situated) is mild but tropical in the lowlands. Materials for the present study were collected chiefly in the Hospital San Juan de Dios, a large 1,000-bed establishment in San José; in schools of the central area and from workers in the Inter-American Institute of Agricultural Sciences in Turrialba. Laboratory facilities were available at the hospital, as well as in the laboratory of the Costarrican Department of Health (Laboratorio del Ministerio de Salubridad), where most of the typing has been carried out.

It seemed that these three geographic units, with their climatic and anthropologic, as well as social and economic diversities might present valuable information.

MATERIAL AND MEDIA

In Costa Rica and in Jamaica stool specimens were collected into buffered glycerol-saline if immediate examination was not possible. Selenite-F served as a shipping medium for rectal swabs and food specimens. Fresh feces were directly streaked to eosin-methylene blue agar and to S. S. plates. Simultaneously one tube of Selenite-F or tetrathionate broth was inoculated, from which S. S. plates were streaked the next day. Specimens in glycerol-saline were treated the same way, while those received in Selenite-F medium were incubated in that fluid and streaked the next day to eosin-methylene blue and S. S. plates.

Meat samples were ground in Selenite-F and incubated in the same fluid, from which plates were streaked the next day, using S. S. medium.

Isolated colonies were transferred to Triple Sugar Iron agar, then tested for indole formation, motility and fermentation of sucrose and mannitol (2). Finally, agglutination tests were carried out with sera prepared at the Hektoen Institute or purchased from the Lederle Laboratories. Through the courtesy of Dr. Erich

TABLE I

DISTRIBUTION OF SALMONELLA STRAINS ISOLATED FROM MAN IN CURACAO, JAMAICA AND COSTO RICA DURING THE FIRST HALF OF 1952

Country	Curacao	Jamaica			Costa Rica		
Origin of Stool	FH + P	Sl	Sy	T	Sl	Sy	T
No. stools examined	5229	1649	1160	2809	325	156	481
No. persons exam ned		1524	1057	2581	309	145	454
No. persons harboring Salmonella	98	13	51	64	7	9	16
% salmonellosis		0.9	3.7[a]	2.4	2.3	6.2	3.5
Species of Salmonella isolated							
paratyphi B	20						
typhimurium	12	7	16	23	1	4	5
saint paul	6						
derby	3						
bredeney	1					1	1
choleraesuis	1						
oranienburg	7	1		1			
montevideo	1	2	6	8			
newport	5	1	5	6	2	1	3
muenchen	1		1	1	1	2	3
typhosa	5		13[a]	13[a]	1		
enterit dis	26	1	1	2			
dublin		1	4	5			
panama	5		1	1			
anatum	2		4	4		1	1
give	2						
rubis law	1						
wichita					1		1
marseille					1		1

FH—food handlers
P—patients
T—together
Sl—symptomless persons
Sy—persons with symptoms
a—includes 11 strains isolated from patients of Kingston General Hospital by the Public Health Laboratories.

Seligmann, some cultures were checked by the National Salmonella Center in New York.

The procedure used in Curacao differed from the above by employing only tetrathionate broth and not Selenite-F; by not using esoin-methylene blue plates; and by inoculating urea test medium to exclude Protei.

RESULTS

Table 1 shows the results of the survey. The largest number of specimens, 5229, was examined in Curacao. 161 of these, coming from 98 persons, were found to harbor Salmonella. The feces were from food handlers and from patients with diarrhea. Typhoid bacilli were present in 5 cases. The leading Salmonella type was S. enteritidis, followed by S. paratyphi B and S. typhimurium. S. saint paul, a rare Salmonella, was repeatedly isolated in Curacao (1, 3). The other organisms present on that island belonged to types which are frequent in meat and in man.

2581 persons were examined in Jamaica and 11 S. typhosa strains were submitted by the laboratories of the Government Medical Service. S. typhimurium was found the most frequently, followed by S. montevideo and S. newport. S. dublin was encountered rather often. This organism is a Salmonella strongly adapted to cattle, especially of European origin. It is not seen in the United States but is common in South America (1).

Only few (481) specimens were examined in Costa Rica, due to the shortness of time allotted for work in that country. Thus the results of the Costarrican survey are rather those of random-sampling. The distribution of Salmonellae in the small group examined showed both human and meat-borne types.

Table 2 is a comparison of the leading Salmonella types in the three countries. The difference between the findings in Curacao and in Jamaica is especially noticeable.

Table 3 presents the results of the examination of animals, birds, meat and milk in Jamaica. Most Salmonella strains recovered from these sources were also isolated from man. The isolation of S. typhimurium and S. montevideo from flocks presumably suffering from pullorum disease; the occurrence of S. dublin in beef and milk; and the great variety of Salmonellae isolated from pork samples are of paramount importance. This part of the study also confirmed the ubiquity of S. typhimurium and the frequency of S. anatum in pork.

TABLE II

FREQUENCY OF SALMONELLA STRAINS ISOLATED IN CURACAO, JAMAICA AND COSTA RICA FROM MAN DURING THE FIRST HALF OF 1952

Country of origin	Curacao	Jamaica	Costa Rica
Order of frequency			
1	S. enteritidis	S. typhimurium	S. typhimurium
2	S. paratyphi B	S. typhosa	S. newport
3	S. typhimurium	S. montevideo	S. muenchen
Further	S. oranienburg S. saint paul S. newport S. panama S. typhosa	S. newport S. dublin S. anatum	Others

TABLE III

SALMONELLA STRAINS ISOLATED FROM SICK ANIMALS, BIRDS, MEAT AND MILK SAMPLES IN JAMAICA DURING THE FIRST HALF OF 1952

Origin of samples	Sick herds of cattle	sick flocks of chicken	Meat			Milk	
			Beef	Pork	Mutton	Pasteurized	Unpasteurized
No. examined	3	16	107	114	18	100	26
Salmonella isolated:							
typhimurium*		1		4			1
montevideo*		1		2			
newport*				1			
muenchen*				2			
dublin*	2		3				2
pullorum		12					
gallinarum		2					
anatum*				3			
london				1			
Total	2	16	3	13	0	0	3
Approx. %			2.8	11.4	0	0	11.5

*Isolated also from man in Jamaica during the same period of time.

DISCUSSION

Making allowance for the well-known limitations of

such surveys, the following facts seem to be of importance:

Typhoid fever, and carriers of S. typhosa, are less frequent in Curacao and in Jamaica than expected from reports based on clinical observations. Such statistics necessarily include other cases of salmonellosis, especially those with the typhoid-like syndrome as well as a host of diseases presenting a similar picture. The relatively low rate of S. typhosa infections in Jamaica is probably due to the extensive campaign of vaccination against this disease, while in Curacao proper water control may be the cause of the small participation of the typhoid bacillus in the Salmonella statistics. Drinking water in Curacao is distilled from seawater, or comes from deep wells.

Human and meat-borne salmonellosis prevail in Curacao. It remains to be investigated how much the rat population of the island contributes to the distribution of Salmonellae, especially of S. enteritidis which heads the list in Curacao. The total number of Salmonella isolations is low, probably due to the greater cleanliness of the island.

The absence of paratyphoid infections in Jamaica has been noted already before the present survey. Animal and human-borne Salmonella strains predominate; cows and hogs being the probable sources; with man, water and meat acting as carriers. Due to the fact that children drink mostly condensed milk, S. dublin is not propagated so much by milk as it is by being transferred, through contact with cow dung, to children playing in yards and meadows.*

Little can be said about Costa Rica at this moment, except that infections conveyed by man probably play a considerable rôle. While further investigation will correct the results of this limited survey, one is impressed by the frequent occurrence of Salmonellae both in apparently healthy and in diarrheic persons.

The difference in the climate, in the eating habits and in the sanitation of the three countries examined during this survey explain the diversity of the isolated Salmonella strains. The results also demonstrate that the Salmonella problem in the Caribbean is as protean as in any other part of the world. The factors involved —foodhandlers, infected animals and birds, rodents, water, meat—vary from place to place. The age-honored custom of boiling milk before consumption in South American countries certainly reduces the number of milk-borne infections.† The example of Curacao shows the influence of good water supply, even in the tropics, upon salmonellosis. The extensive urban and rural vaccination campaign against typhoid in Jamaica also seems to bring fruits.

The tropics, as well as countries in temperate climes, have a long way to go yet to establish general and unconditional meat and poultry inspection by qualified veterinarians. Proper, periodic and scientific, strict supervision of food handlers is a goal not attained as yet in many places. Rodent eradication, especially in commercial harbors, is not an easy task. Finally, not only laymen but also many members of the medical profession are still unaware of the importance of salmonellosis caused by other organisms than by S. typhosa. Thus one may assume that the eradication of salmonellosis in the Caribbean depends on the same factors as in the rest of the world: on the cooperation of laboratories, sanitary engineers, veterinarians, physicians and educators.

*This possibility was suggested by Dr. Cicely Williams from the University College of the West Indies.

†Comment of Dr. George S. Payne of the Rockefeller Foundation.

SUMMARY

Stool specimens from symptomless individuals and from persons suffering from diarrhea were examined in Curacao, Costa Rica and Jamaica. Sick animals, birds, as well as meat and milk samples were examined in Jamaica. Salmonellae were found in all three countries. In Curacao S. enteritidis, S. paratyphi B and S. typhimurim were the leading Salmonellae. Paratyphoid bacilli were not isolated in Jamaica but S. typhimurium, S. montevideo and others were frequently found. S. dublin was encountered in cattle. Fewer S. typhosa strains were isolated in Curacao and in Jamaica than expected. The incidence of Salmonellae was high in Costa Rica both in symptomless persons and in hospital patients.

ACKNOWLEDGEMENTS

We are most indebted to the Institute of Inter-American Affairs, especially to Dr. W. W. Peter, Dr. P. S. Fox, Dr. C. A. Pease, Jr., and to Dr. J. Rogier for their great interest and effective help which made this work possible. We are most grateful to the responsible persons and officers of the Jamaican Island Medical Services, the Jamaican Department of Agriculture, the Jamaican Child Welfare Association, the Jamaican Livestock Association and the University College of the West Indies for their cooperation and hospitality. Special recognition is due to Dr. Cicely Williams for her enthusiastic support of this program. We are most thankful to Dr. Oscar Vargas Méndez, Director of Health of Costa Rica, for his energetic help and utmost cooperation and for the splendid work and support of Dr. Alfonso Trejos Willis, Director of the Laboratory of the Hospital San Juan de Dios and Dr. Arnoldo Castró Jenkins, Director of the Public Health Laboratory in Costa Rica. Personal thanks are due to all physicians, veterinarians, sanitary engineers, nurses and laboratory personnel who cooperated so splendidly. In addition to local staffs and persons enumerated as authors of this paper, the Tropical Research Foundation of Chicago made possible the services of Mrs. Virginia Bohnau in Costa Rica and Jamaica, as well as the participation of Miss Jeanette Norsen in Jamaica on this project.

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INVESTIGATION OF ENTERIC INFECTIONS IN THE CARIBBEAN AREA. 3. DISTRIBUTION OF SHIGELLA STRAINS IN JAMAICA AND COSTA RICA.

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A REPORT ON a survey of the distribution of Salmonellae in Curacao, Jamaica and Costa Rica, performed under the aegis of the Tropical Research Foundation and the Lasdon Foundation, with the cooperation of the respective governments and the Institute of Inter-American Affairs, constituted the second part of the series of these papers (1). The methods used to collect stool samples and the means applied for the isolation of Salmonellae therefrom allowed us to study simultaneously Shigellae occurring in the fecal specimens. Since Shigellae only seldom appear in the blood and those which are pathogenic for man do not occur in domestic animals, the search for these organisms was restricted to stools of human origin.

The Shigella problem in Curacao is seasonal. The survey was performed during the time (January to July, 1952) when Shigellae are "off-season" in Curacao. It is believed that statistics on the finding of Shigellae during that part of the year would not give a true picture of shigellosis in Curacao. They were, therefore, not included into this article.

The geographic, economic and ethnologic conditions in Jamaica and Costa Rica, as well as the places, methods and means of sample collection and examination have been described in a previous paper (1) and, therefore, should not be repeated here.

Table I shows the results of the stool examinations. In Jamaica, 1,524 persons were examined who did not show clinical symptoms. Thirty-two of them, i.e. 2.9 per cent, harbored Shigellae. Of the 1,057 persons with diarrhea, 62 or 5.8 per cent had Shigellae in their stools. In the latter group 157 inmates of an almshouse are included of whom 59 harbored Sh. sonnei which was counted in the column of microorganisms as one. When this outbreak is discounted, the corrected figure of Shigella infections in Jamaica among persons suffering from diarrhea is 61 out of 900 patients examined, or 6.8 per cent. Relatively more Shigella strains were isolated in Costa Rica. The difference between the number of strains isolated in Jamaica and in Costa Rica is significant even if a greater error of statistical nature can be expected in the percentage of findings in the latter country, due to the smaller number of samples examined during the survey there.

The distribution of Shigella strains in both countries showed distinct patterns. Sh. ambigua, a strain frequently found in South America, was present in Costa Rica. Sh. paradysenteriae types were seen in both countries. Sh. paradysenteriae Flexner II (W) was isolated only in Costa Rica, while Sh. paradysenteriae Flexner III (Z) appears only in the statistics from Jamaica. Since the latter strain is frequent in India,

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TABLE I

DISTRIBUTION OF SHIGELLA STRAINS ISOLATED FROM MAN IN JAMAICA AND COSTA RICA DURING THE FIRST HALF OF 1952

Country	Jamaica			Costa Rica		
Source of stool	Sl	Sy	T	Sl	Sy	T
No. persons examined	1524	1057	2581	309	145	454
No. persons harboring Shigella	32	62*	94*	6	14	20
% shigellosis	2.9	5.8	3.6	1.9	9.7	4.4
Species of Shigella isolated						
ambigua				1	4	5
paradysenteriae						
Flexner I (V)	1		1			
Flexner II (W)				2	2	4
Flexner III (Z)	4	18	22			
Flexner VI (Boyd 88)					1	1
Flexner VZ					1	1
alkalescens	14	9	23	2	3	5
sonnei	13	35*	48*	1	3	4

Sl—symptomless persons
T—together
Sy—persons with symptoms
*—includes 59 cases in an alms-house outbreak counted as one.

one has to wonder if the presence of a large East-Indian population in Jamaica may explain this phenomenon. Immigrants from the Far East may have brought the strain with them, as Sh. paradysenteriae Flexner VI (Boyd 88) followed the German Army during World War II.

Of genetic interest is the isolation of Sh. paradysenteriae VZ early during the course of a case of acute bacillary dysentery in Costa Rica, since such strains are generally considered variants originating during late stages of the disease, or in old stock cultures.

Sh. alkalescens and Sh. sonnei, were frequently encountered both in symptomless persons and in patients with diarrhea.

The clinical course of bacillary dysentery in both countries did not differ from that observed under a temperate clime.

SUMMARY

Stools from 2,581 persons in Jamaica and from 454 in Costa Rica were examined for Shigellae. Sh. ambigua; Sh. paradysenteriae Flexner II (W), Flexner VI (Boyd 88) and VZ were found in Costa Rica, while Sh. paradysenteriae Flexner I (V) and III (Z) were isolated in Jamaica. Sh. alkalescens and Sh. sonnei were present in both countries.

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AN EVALUATION OF PRANTAL IN THE MANAGEMENT OF PATIENTS WITH RESISTANT CHRONIC DUODENAL ULCER

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IN GENERAL, therapy of uncomplicated duodenal ulcer is satisfactory. Sandweiss and Sugarman (1) with conventional therapy—i.e. diet, antacids, antispasmodics, sedatives, and psychotherapy—reported relief of the first treated attack in 93 per cent of their patients. Relief in such cases is apt to be prompt. It would seem reasonable that this group of patients, having early lesions, would be particularly favored to obtain good results from a medical regimen. By the same token, long-standing ulcerations especially in those patients who have had several relapses are less likely to improve under such a program. Therefore, one must be cautious in drawing conclusions concerning the efficacy of any specific type of treatment for duodenal ulcer without some knowledge of the previous response to therapy of the subjects in the study. Before a drug can be seriously considered as an addition to the practicing armamentarium, it must relieve more than 93 per cent of the patients in a series similar to that of Sandweiss (1) or be able to relieve the failures of conventional therapy. Ideally, the drug should have the ability of preventing the characteristic relapses of the disease.

There is some objection to all of these methods of evaluating a new agent. It is nearly a physical impossibility to collect sufficient data to make a significant comparable study of two similar groups maintained on different therapeutic regimens. On the other hand, to limit the study group to patients who have failed on conventional therapy means one must be satisfied with a smaller number of cases. A study of the effect of a drug on the rate of recurrence of symptoms requires a prolonged period of observation and a substantially reduced number of subjects.

We felt for our purposes the most satisfactory group of patients to study would be individuals who were not relieved by conventional therapy. The therapeutic resistance of these patients makes for some degree of homogeneity of the study group and provides the means for a more exacting test of the drug. Twenty-nine such patients were found in our private practice or were referred to us for treatment by other physicians. We were also able to make a few observations on the treatment of recurrences of distress.

METHOD OF STUDY

These 29 patients were being maintained on a fourth stage ulcer diet, sedation, and various alkalies along with an antispasmodic. The antispasmodic previously used was either atropine (.00065) Tr. belladonna (maximum tolerated doses) Ext. belladonna (0.01) or Banthine (0.1). These drugs had been taken four times daily. The patients were advised to continue the same regimen except all patients were placed on Prantal* 100 mg. before meals and at bedtime instead of their previous antispasmodic. These patients had been treated by us for several years in most instances and various changes in therapy had been made occasionally during these years, however, a basic program had been maintained. Because of our long relationship with these patients we felt any psychologic effect of a new medicine would be minimal.

The patients were seen in follow-ups at two-week intervals and at these times they were queried as to pain, nausea, vomiting, dryness of the mouth, and blurred vision. If symptoms of ulcer were reported by the patient, the dose was increased to 200 mg. If pain

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*Material for this investigation kindly supplied by George Babcock, Jr., M.D., Division of Clinical Research, Schering Corp. N.N, Dimethyl 4—Piperidylidene 1,1, Diphenylmethane Methyl Sulfate is marketed as Prantal.

continued or drug toxicity occurred, the medication was stopped and considered as a case failure.

Twenty-nine patients were studied, of these 5 were females. The ages ranged from 28 to 69 years, the mean age was 48 years. Twenty-seven of these patients had duodenal ulcer alone, two had a marginal ulcer secondary to a gastro-enterostomy. One of the marginal ulcers was associated with active duodenal ulcer as well. The previous existence of ulcer ranged from 1 to 29 years, mean duration was 10 years.

RESULTS

Nineteen of the 29 patients studied for the period of 4 months were relieved, 8 were no better than with their basic therapy, 1 was definitely worse. One other patient reported she was better than when on atropine, Banthine, or belladonna. However, she continued to complain, therefore, was considered a failure. The patient who became worse while on Prantal complained of abdominal pain and xerostomia while on a dose of 100 mg. four times daily. There was one additional case of intolerance. In this last case the urinary stream was obstructed, requiring catheterization. Of the 9 definite failures, 3 were operated upon. Some patients of the failure group were controlled by dietary changes, others sought medical care elsewhere.

A smaller group of the original patients was followed beyond the initial period for one year by one of us (WJS). Eleven patients who had responded to treatment with Prantal have been followed now for 9 to 13 months. Three have been taken off of all medication relying only on dietary management. Eight other patients have remained well while taking Prantal. One intractable patient has had three episodes of activity and pain upon stopping his medication. These episodes were brought under control promptly when he again took the drug. Three individuals have had to take 200 mg. four times daily for short periods to control the pain.

TABLE I

No.	Patient	Duration	Relief	Tolerance	Site	Age	Sex
1	L. P.	10 years	+	+	D. U.	31	M
2	K. W.	12 years	+	+	M. U.	13	M
3	G. C.	15 years	+	+	D. U.	60	M
4	S. C.	4 years	+	+	D. U.	4	M
5	F. S.	25 years	+	+	D. U.	63	M
6	E. D.	29 years	+	+	D. U.	69	M
7	J. J.	7 years	+	+	D. U.	64	M
8	R. S.	2 years	+	+	D. U.	53	F
9	J. L.	12 years	+	+	D. U.	63	M
10	H. H.	3 years	+	+	D. U.	46	M
11	E. L.	16 years	–	–	D. U.	50	M
12	G. G.	12 years	–	+	M. U. D. U.	55	F
13	J. W.	21 years	–	+	D. U.	48	M
14	T. J.	10 years	–	+	D. U.	38	M
15	F. S.	6 years	–	–	D. U.	62	M
16	H. R.	12 years	+	+	D. U.	53	M
17	W. K.	10 years	+	+	D. U.	50	M
18	J. T.	6 years	+	+	D. U.	52	M
19	M. S.	4 years	–	+	D. U.	56	F
20	J. P.	8 years	+	+	D. U.	58	M
21	H. M.	4 years	+	+	D. U.	36	M
22	J. H.	1 year	–	+	D. U.	28	M
23	J. V.	2 years	–	+	D. U.	34	M
24	M. B.	20 years	+	+	D. U.	53	F
25	C. V.	2 years	+	+	D. U.	42	M
26	T. F.	1 year	–	+	D. U.	40	M
27	H. M.	10 years	+	+	D. U.	30	M
28	W. S.	6 years	+	+	D. U.	44	M
29	C. B.	4 years	+	+	D.U.	43	M

DISCUSSION

Marks (2) studied the effect of Prantal on 40 patients with duodenal ulcer. Thirty-six (90 per cent) were benefited. Heineken (3) obtained relief of pain in 20 of 21 patients studied. These reports are not strictly comparable to this study inasmuch as they did not select all their subjects as to response to previous therapy. However, in Heineken's group—there were five patients who had for one reason or other been considered a therapeutic failure while on another blocking agent. All five of these patients were helped by Prantal. Sandweiss and Sugarman (1) in a series similar to the one here reported obtained relief of symptoms in 14 of 22 patients (64 per cent) previously considered therapeutic failures. Assuming all other things being the same, if we add the comparable data of the above authors to the present series we have a rather significantly large series in which 69 per cent were helped. cf Table II.

TABLE II

	Patients Studied	Patients Relieved	Toxic Symptom
Heineken	5	5	0
Sandweiss and Sugarman	22	14	1
Snape and Sharp	29	20	2
Total	56	39 (64%)	3 (5.4%)

However, Bayer, Plummer, and Bradford (7) found Prantal to be ineffective in the usual doses when used as the sole therapeutic measure for the treatment of duodenal ulcer. These authors attempted to treat gastroduodenal ulcers by Prantal alone without dietary limitation and found it incapable of relieving pain. However, when a group of "complicated duodenal ulcers manifested by penetration or intractability" were treated with Prantal in addition to a standard Sippy regimen, five of the six responded well in 24 hours. This certainly emphasizes that Prantal regardless of the dose is to be considered as an adjuvant to the usual reasonable therapy.

Prantal, a quaternary amine, apparently possesses unique pharmacodynamic properties (4). Animal experimentation revealed the compound was able to reduce gastric motility and acid secretion in doses insufficient to produce mydriasis or xerostomia in the test animal. These authors believe the drug acts to a certain degree selectively on the gastro-intestinal tract. We encountered two cases of intolerance to the drug; one patient, an asthmatic, complained of severe xerostomia and abdominal pain. The other case of intolerance had urinary retention in addition to xerostomia; however, interestingly enough his ulcer symptoms were relieved while on the drug. Nelson (5, 6) report-

ed four cases of drug sensitivities in 63 patients treated for skin disorders. Sandweiss and Sugarman (1) reported a single case of toxicity. Heineken's total series of 21 patients was free of toxic symptoms. In Mark's series of 46 patients, three patients were unable to tolerate the drug. Therefore, in a total of 185 cases included in these five studies 10 or 5 per cent had untoward side reactions. This compares favorably with some other blocking agents which have been reported to have produced undesirable side effects in as high as 20 per cent of the patients treated (2).

SUMMARY

This study of a group of 29 ambulatory patients with chronic duodenal ulcer, unresponsive to previous therapy, revealed a certain percentage (66 per cent) obtained relief of symptoms upon the substitution of Prantal for the previously administered antispasmodic.

The usual dose of the medication was 100 mg., four times daily; however, in certain instances 200 mg. were required to attain maximum results. Eleven patients have been followed nine months or longer. A recurrence of symptoms in three patients was readily controlled by increasing the dose to 200 mg. for a short interval.

There were two instances of undesirable side effects of the drug which quickly disappeared when the medication was discontinued.

These initial observations indicate Prantal is of value in the therapy of duodenal ulcer. It is suggested that further studies with the accumulation of more data over a protracted period of time will be necessary to evaluate the place of Prantal as an antispasmodic adjuvant in the treatment of duodenal ulcer.

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CLINICAL RE-EVALUATION OF DORBANE* IN THE TREATMENT OF FUNCTIONAL CONSTIPATION

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THE INCREASING knowledge of bowel physiology warrants restudy of medication used in the treatment of functional constipation. There has been a slow progression from drastic cathartics, both vegetable and mineral, to hydrocarbon oils, hemicellulose, cellulose and various combinations to include vitamins or resinous acids. The search for better medication is a continuous process.

What are the defects with the present methods of treating constipation? Correcting bowel atonia or spasm with dietary changes and increased fluid intake creates a difficult problem in people who have fixed living habits and are unwilling or unable to change them. The usual medications are often temporary in action, habit forming or have undesirable side effects. Mineral oil, seemingly an innocuous lubricant either alone or with some other agent has become widely used. Even though it is relatively inert, it mixes with the contents of the digestive tract through its entirety. Not only does oil-covered food remain in part undigested, but oil-soluble vitamins are removed with the fecal stream (1). Absorption of mineral oil has been noted (2-5) as well as interference with calcium and phosphorus metabolism (6). Upper intestinal digestive juices are carried into the terminal colon and may contribute to delayed healing of anorectal wounds following surgery and/or cause itching of the perianal skin after ingestion of such oil.

Thiele (7) has pointed out that the passage of an oil-laden stool through a spastic anal canal forces oil and bacteria into patent anal crypts. Softening the stool so that only ribbon-size material will pass through a chronically infected anal outlet increases the stenosis, fissuring and contributes to abscess and fistula formation as well as other complications. Used postoperatively, mineral oil in any form delays healing of anorectal wounds and thereby increases the amount of post-operative scarring. Modification of mineral oil with agar, yeast, anthracenes or other additives lessens the untoward effects but does not eliminate them.

During the past five years bulk-producing agents have had a resurgence in the treatment of constipation. The hemicellulose compounds such as agar, karya, strangula gum, psyllium seed and more recent soluble cellulose have, in their turn, offered themselves as ideal medication. Allergenic reactions, habituation and impactions have been encountered in sufficient frequency to question their value in treatment.

It has become obvious to those who treat constipation that bulk-producing material alone cannot be expected to affect normal bowel activity. The action of bulk is to distend the bowel sufficiently to induce peristalsis. When there is insufficient bulk in the diet, adding such substances may suffice for that time. In the atonic bowel, increasing the quantity of contents does not strengthen the musculature.

*Brand name of 1,8 Dioxyanthraquinone, property of Schenley Laboratories.

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Submitted Jan. 21, 1953.

Treatment of functional constipation whether spastic, atonic, emotional, acute or chronic necessitates a plan peculiar to the individual case. Whatever the cause, correction must be made. Emotional problems should be carefully considered and treated when recognized. Again fluid and food adjustments, even though they had not been effective previously, must be explained and adhered to in order that the patient understands and contributes to the solution of his problem. Suitable medication may also be used. This preferably should be palatable, active in small dosage, create no interference with digestion, have no toxicity or accumulative action and not be habit forming.

Bayer isolated and synthesized 1.8 Dioxyanthraquinone. This compound is closely related to emodin (oxymethyldioxyanthraquinone) the active principal in such vegetable laxatives as rhubarb, cascara, senna, aloes and frangula. Hubler (8), one of the first to use it in treating functional constipation, was impressed by the fact that it did not require increased dosage. Gaederts (9) used this compound in treating Hirschsprung's disease in children and reported superior efficacy over previous medication. No habituation followed its use. Kadletz (10) stressed its particular suitability as an intestinal regulant in chronic cases.

Because of the long and successful use of this compound in Europe, and since it appeared to fulfill the requirements for a safe and effective aperient in treating non-pathogenic or functional types of constipation, I was prompted to make a clinical study of Dorbane on a variety of cases.

Ten people without intestinal complaints were given 150 mg of Dorbane on retiring. In all there was marked hypermotility of the bowel with four to eight stools daily. These occurred from eight to twelve hours after ingestion. When 75 mg were taken with the evening meal, no intestinal discomfort followed. The average number of stools were two daily and were soft and not formed.

Forty-two patients complaining of constipation due to faulty hydration, improper dietary regime and chronic catharsis were given 75 mg of Dorbane with their evening meal. After a month of dietary and medical treatment, eighteen needed no further medication. At the termination of three months, twenty-five maintained satisfactory bowel movement with diet alone. Within a five-month period thirty-six of the group had become fully rehabilitated. Seven of the initial group needed 150 mg as the starting dosage. None required further medication at the end of the trial period. Six of this group had the spastic types of constipation. For these cases the initial dose of Dorbane required was 37.5 mg. Soothing bulk and antispasmodics were also required in the early phases of their treatment.

Two children aged 8 and 12 with Hirschsprung's disease were placed on Dorbane. The younger responded to 75 mg daily with spontaneous bowel movements on alternating days. The elder did not. Doubling the dose to 150 mg produced abdominal cramps and saline enemas were required to empty the sacculated and dilated bowel above the area of constriction.

Two children with megacolon reacted well to 75 mg and 37.5 mg of Dorbane with their evening meal. Early recognition of megacolon and Hirschsprung's disease in children and the prevention of over-distention of the bowel by suitable diet, medication and simple, non-irritating enemas would do much to lessen constipation and obstipation that occur in these cases.

Twenty-two elderly patients averaging sixty-two years of age who had been refractive to all previous treatment were given 75 mg. of Dorbane with their evening meal. Again increasing fluid at mealtime with more fruits and vegetables added to the diet was advised. Where diet changes alone were ineffective, daily or alternating daily bowel movements were obtained following the added use of Dorbane. Four of this group who had been on drastic cathartic treatment required 150 mg dosage and, for the first time in their memory, had satisfactory bowel movements without discomfort. Within a four-month period, with gradual reduction, fourteen required no more medication. The remaining eight maintained, what they considered, normal bowel action by taking 75 mg or 150 mg of Dorbane once or twice weekly.

Two cases of intractable atonic constipation associated with Parkinson's disease were treated with good results. This condition was caused by decreased propulsive ability resulting from general weakness of body musculature and accumulative action of the mydriatic drugs. Seventy-five milligrams of Dorbane twice daily brought prompt relief and maintenance dosage of the same amount daily or alternating days has been adequate during the past year of treatment.

The following case report shows the elasticity of Dorbane in unusual circumstances:

Mr. D. W., age 31, is a paraplegic, the result of a neck injury in his boyhood. His bowel habits had been a constant problem since the accident because he was unable to regulate their function with any degree of surety. Starting with 75 mg of Dorbane, he was able, after a two-week period, to effect daily bowel action with 37.5 mg on alternating days and at a time most convenient to him.

Surgery of any kind is always associated with visceral shock. This is exemplified by some degree of retardation of bowel activity. Where pain, fear and apprehension are added factors, all contribute to anal and pelvic muscle spasm. Dorbane Confets* containing 75 mg of the drug were given to 70 anorectal operative cases. A single tablet was given with the evening meal, starting on the day of operation and every day thereafter as required. A spontaneous soft stool occurred on the second or third post-operative day. Only one requested an enema. In more than half of the cases this dosage had to be decreased to half a tablet after the first bowel movement. Some required less and needed 37.5 mg on alternating days. All medication was easily withdrawn within ten to fourteen days in all but a few who had been chronically constipated. The anal wounds were decidedly cleaner, the scars were softer and healing was more rapid than when mineral oil was used.

Based upon these clinical observations Dorbane was suggested in the treatment of constipation during pregnancy. The increase of fat in the diet in the form of milk with a decrease in the quantity of ingested

*A wafer form of Dorbane.

fluids helped produce dry, scybalous stools in many. The medication was effective in keeping the bowel movements more regular and softer in consistency. Following delivery dosage was constantly reduced until the patient had resumed normal food and fluid intake.

The only side effect of Dorbane which is without clinical significance is the orange pigment that appears in the urine when the medication is taken. Since a small quantity is absorbed and passed through the liver, a combination with uronic acid causes this pigment to be formed. The lack of its significance should be explained to the patient.

Discussion and Conclusions

There has long been need for a laxative having no undesirable qualities. Violent cathartics, habit forming drugs, oils and bulk producing material have not proven to be entirely safe or satisfactory. One point eight (1.8) Dioxyanthraquinone (Dorbane) has been successfully used in treating various types of functional constipation and can replace other agents previously used in establishing normal bowel function in postoperative anorectal cases. These clinical trials on a variety of patients re-emphasize the proven safety and efficacy of this laxative compound.

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CCK* TREATMENT FOR THE SYNDROME OF VAGUE ABDOMINAL DISTRESS, SYMPTOMATIC AND ROENTGENOGRAPHIC STUDY

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FUNCTIONAL GASTROINTESTINAL abnormalities may be revealed by changes in motility, secretion, or absorption.(1)

In the past, it has been popular to relegate many abdominal complaints to so-called psychic causes. But, recent studies have shown that these abdominal complaints frequently are caused by uncoordinated and abnormal functions of the gastrointestinal tract. (2)(3)

Experience has shown that the most important symptoms are: flatulence, diarrhea, vomiting, epigastric distress or epigastric pain, abdominal distress, constipation, abdominal pain, spasticity. Cramps and bloating have been mentioned in the literature (2) but were not found important in our studies. Since by definition the syndrome is vague, the possibility cannot be overlooked that another series would tend to emphasize different symptoms. (4)

Medication

Many different kinds of medication, bodily exercise, and psychotherapy have been recommended for these cases. The persuasiveness of the syndrome and severity of symptoms far outweigh the usual slight reassurance by Physicians that there is nothing wrong. Physical examination will ordinarily show nothing.

In this study CCK was used to determine its effect on the syndrome. Each tablet of CCK consists of 1 mg. of the complex, dihydroergocornine, dihydroergocristine, and dihydroergokryptine (equal amounts of each). Experience shows that it is an effective modifier of the rate and degree of filling for the individual sections of the intestine. This result will be described. (2)

*CCK was the experimental designation of Hydergine (Trademark of Sandoz Company). CCK consists of 1 milligram of equal amounts of dihydroergocornine, dihydroergocristine and dihydroergokryptine.

Mechanism of Action

The mechanism of action elaborated for various ergot derivatives shows that small changes in chemistry may cause considerable change in effect. For instance, it is shown that ergotoxin and ergotamine have little effect on gastrointestinal motility but ergonovine causes relaxation of the isolated rabbit intestine. (5)

The mode of action on the smooth muscle of the intestine may be direct, but this is not believed to be the manner of action of the medication used in the study.

The other method of action through the parasympathetic or sympathetic nervous system is the probable mode of action. Affectors of the parasympathetic nervous system will stimulate gastrointestinal motility and depressors of the parasympathetic nervous system will decrease gastrointestinal motility. On the other hand, potentiation of the sympathetic nervous system inhibits motility and such drugs are called adrenergic. The exact mechanism of action has not been fully explained. Adrenergic ergot action has been demonstrated on the isolated intestinal tract of the rabbit and on the nonpregnant cat uterus. (6) (7)

It seems to be generally agreed that ergot derivatives do not increase the propulsive motility of the intestine. (8)

While Ivy and co-workers (9) have shown that the action of prostigmine bromide is potentiated by ergotamine tartrate and other combinations of similar drugs, no attempt was made to estimate or evaluate the process of nonpropulsive motility which is often stimulated by ergotamine and ergot derivatives.

Edlen (10) has utilized ergotamine alone as a treat-

ment for peptic ulcer. This treatment was extremely successful in up to 90% of the cases. In large doses ergotamine may affect the receptor mechanism directly. But in small doses it may stimulate smooth muscle to contract. It has been shown to enhance the action of prostigmine. (9) The propulsive activity is not stimulated by ergot derivatives. (11)

PROCEDURE

Patients were given physical examination with special reference to the above listed complaints of abdominal discomfort. Following physical examination, full roentgenographic study was performed including barium meal. In addition to the usual gastrointestinal series, an additional study was made. For the additional study, the patients took the barium at twelve midnight. Thereafter the patient presented himself for roentgenographs at 9 A.M., 11 A.M., and 3 P.M. so that the progress of the barium meal could be checked.

Motility was reported as follows for each time period:

1. stomach
2. small intestine
3. ileocecal junction to hepatic flexure
4. hepatic flexure to splenic flexure
5. splenic flexure to sigmoid
6. sigmoid to rectum
7. rectum to evacuation
8. substantially complete evacuation

DOSAGE

Each patient was treated for a period of three weeks before the tests, results of which are marked "After Medication," were performed. During these three weeks and during the tests the dose of CCK was 1 tablet 4 times daily.

RESULTS

Motility

Before medication at 9 hours, the average movement was to a point between the end of the small intestine and the descending colon. At 11 hours the average was at a point between the cecum and the sigmoid. At 15 hours the average was the same.

After treatment, the average, at 9 hours, was at a point between the small intestine and the descending colon; at 11 hours, at a point between the cecum and sigmoid; and at 15 hours, the same.

Nausea

There were 6 cases of nausea before medication. After medication there were 4. One of these had not complained of nausea before medication, but reported that it was induced by the medication.

Flatulence

Flatulence was present in 14 cases. After medication only 3 cases complained of flatulence. One case claimed there was an increase in the discomfort.

Diarrhea

Diarrhea was present in 8 cases. After medication there were only 2 cases which still complained of diarrhea. Diarrhea was not induced by the medication in any case.

Belching

There were 11 cases of belching before treatment. Six had complete relief, 2 partial relief. There were two cases of increased discomfort, and 1 case of induced belching.

Constipation

There were 11 cases of constipation before medication. After medication 5 had complete relief and 6 had partial relief. Constipation was not induced by the medication.

Epigastric Pain

There were 5 cases that complained of epigastric pain. After medication there was only 1 case with epigastric pain. Pain was not induced by the medication in any case. There was 1 case which complained of increased pain.

Abdominal Pain

Seventeen cases complained of abdominal pain, before medication. After medication, 8 had complete relief. Six had partial relief, and 3 still complained of abdominal pain. Pain was not induced by the medication, in any case.

Spasticity

Before medication, there was evidence of spasticity in 18 cases. After medication, there were 4 cases of complete relief, 6 cases of partial relief, 6 cases with no relief, and 2 which had apparently increased spasticity. In 1 case, the barium was not visualized because of the condition of hyperperistalsis and in another case, there was improvement in peristaltic action.

SUMMARY

	Before Medication	Complete Relief	Partial Relief	No Relief	Increased	Induced
Belching	11	6	2	1	2	1
Nausea	6	3	—	3	—	1
Flatulence	14	11	—	2	1	—
Diarrhea	8	6	—	2	—	—
Constipation	11	5	6	—	—	—
Epigastric pain	5	3	—	1	1	—
Abdominal pain	17	8	6	3	—	—
Spasticity	18	4	6	6	2	—
COUNT:	90	46	20			

CONCLUSIONS

In a total of 28 cases of vague abdominal syndrome out of the count of 90 complaints, which were verified by compatibility with case history and roentgenographic findings, there were 46 completely relieved and 20 partially relieved. This count illustrates the percentage degree of benefit experienced by treatment with CCK.

Analyzing the results it is striking to note that al-

though the roentgenographic evidence is not conclusive when it is considered together with the case histories, the benefit derived is great.

There are apparently two types of activity found in the intestine. One type, the propulsive movement, has not been changed markedly by CCK.

The other movement is non-propulsive activity. This was increased by CCK. Concomitant with this increase, there was improvement in digestion. This would naturally follow because it represents an improved tonus of the muscle and the added activity helps to churn the digestive contents, eliminates gases, and probably increases secretions. This activity comes under the general heading improvement in digestion.

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NUTRITION ABSTRACTS

BEIDELMAN, B.: *Clinical vitamin deficiencies in patients with diabetes mellitus.* J. Clin. Nutrition, 1, 2, Jan. 1953, 119-123.

Clinical vitamin deficiencies in patients with diabetes mellitus occur (a) when patients are given low calorie and/or low fat diets without supplementary vitamins, (b) in otherwise well nourished patients whose diabetes has been poorly controlled for variable periods of time. In the first group, the perifollicular hyperkeratosis and dry skin of avitaminosis A and the peripheral neuritis and mucous membrane changes of avitaminosis B are most often seen. In the second group, hepatic enlargement responding to choline therapy and diabetic neuropathy responding to treatment with vitamin B_{12} are discussed. Obviously in cases of true diabetic neuropathies, the resemblance to the combined system disease of pernicious anemia is obvious. (This is the first time that anyone has found vitamin B_{12} curative in these cases, and it should not be forgotten that pernicious anemia and diabetes not too infrequently may occur in the same individual.—Reviewer)

STEVENS, A. R., COLEMAN, D. H. AND FINCH, C. A.: *Iron metabolism: clinical evaluation of iron stores.* Ann. Int. Med., 38, 2, Feb. 1953, 199-205.

Iron stores were evaluated by direct examination of particles of aspirated marrow. Hemosiderin iron, when present, represents iron available for hemoglobin production. In the normal individual small amounts of hemosiderin are visible, although there is more stored iron in men than women, presumably because of menstrual losses. There is a shift of iron from red cells to tissue stores in anemias other than those due to blood loss. In iron deficiency there is a virtual absence of marrow iron. Only those patients with a marked reduction or absence of marrow iron will respond to iron therapy. The anemia of infection may be clearly separated from iron deficiency anemia by examination of marrow iron.

KINSELL, L. W., MICHAELS, G. D., PARTRIDGE, J. W., BOLING, L., BALCH, H. E. AND COCHRANE, G. C.: *Effect upon serum cholesterol and phospholipids of diets containing large amounts of vegetable fat.* J. Clin. Nutrition, 1, 3, March 1953, 224-231.

The use of formula diets containing large amounts of vegetable fat has resulted consistently in a major fall in serum cholesterol and in phospholipids. Whatever the meaning of this observation, it is apparent that high dietary fat *per se* does not result in elevation of serum cholesterol. Vegetable fats are essentially free of cholesterol, so that the results may have been due to a simple lack of cholesterol and phospholipids in the diet. Again, some vegetable sterol may have some effect on cholesterol and/or phospholipid metabolism.

HILL, K. R., RHODES, K., STAFFORD, J. L. AND AUB, R.: *Serous hepatosis in Jamaican children.* New Zealand M. J., LI, 286, Dec. 1952, 420-421.

A disease called "serous hepatosis" occurs in Jamaican infants and children living on a poor protein diet. The majority of the patients are of African origin. Many are underweight and some are stunted, although they appear well proportioned and in good nutrition. Non-specific infections play an important role in precipitating acute serous hepatosis. Histologically, the disease is progressive, leading from an initial serous exudation or edema within the liver to deposition of an eosinophilic coagulum and finally to fibrosis. Enlargement of the liver is a cardinal clinical sign. A mosaic pattern of the skin is frequently seen. The disease is differentiated from Kwashiorkor because children with serous hepatosis do not appear ill. The authors do not discuss treatment.

AMER. JOUR. DIG. DIS.

WEISS, T. E.: *Current concepts of gout.* American Practitioner, 4, 2, Feb. 1953, 89-93.

The use of radioactive isotopes has permitted the tagging of food substances whose molecules enter into the synthesis of uric acid. The size of the body reservoir of uric acid can now be measured and is referred to as the "miscible pool of uric acid." This is normally from 1150 to 1350 mg., while in gout it may be as much as 4742 mg., or even 31,000 mg. Uric acid may exist in the body fluids in a colloidal form. Uric acid partition refers to bound and free uric acid, the ratio of which may be determined by ultrafiltration of the serum. The bound uric acid in gout is about twice the normal. Colchicine is the drug of choice in treating acute attacks of gout, although its *modus operandi* is obscure. Salicylates and/or benemid do not control acute attacks, but supplement colchicine. A.C.T.H. is probably useful in treating acute attacks resistant to colchicine.

SNYDERMAN, S. E., HOLT, E., CARRETERO, R. AND JACOBS, K.: *Pyridoxine deficiency in the human infant.* J. Clin. Nutrition, 1, 3, Mar. 1953, 200-207.

Pyridoxine deprivation in 2 human infants resulted in an arrest of weight gain and failure of the ability to convert tryptophane to N'-methylnicotinamide in both. In one subject it resulted in convulsive seizures; in the other it provoked a severe microcytic hypochromic anemia. All these symptoms and signs were corrected by the introduction of pyridoxine into the diet. The ability to convert tryptophane to N'-methylnicotinamide is suggested as a biochemical test for pyridoxine deficiency in the human.

BROZEK, J.: *Semistarvation and nutritional rehabilitation.* J. Clin. Nutrition, 12, Jan. 1953, 107-118.

This is the story of a young man who underwent semistarvation for 24 weeks, and then was rehabilitated by food. The author was particularly interested in the psychological manifestations at various stages of starvation and also during rehabilitation. A semistarvation neurosis was gradually produced by the prolonged calorie deficiency and physical deterioration. He became self-centered and grouchy with food and self-preservation uppermost in his mind. Prior to the experiment he had been a cheerful and altruistic individual. Thirty-three weeks after the end of the semistarvation period he was largely back to the prestarvation normal except for a somewhat less cheerful outlook and elevated concern regarding matters of health.

PENNINGTON, A. W.: *An alternate approach to the problem of obesity.* J. Clin. Nutrition, 1, 2, Jan. 1953, 100-106.

Evidence of a homeostatic regulation of the appetite and fat storage suggests, as a cause of obesity, some other hypothesis than simple overfeeding. Two hypotheses are discussed. These are, (1) psychic stress operating through the autonomic nervous system on the hypothalamus and (2) the "lipophilia" concept of obesity. If the concept of obesity as due to excessive fat storage is correct, then caloric restriction must be viewed as merely nonspecific therapy. A more rational form of treatment would be directed toward mobilization of fat deposits, with the use of a diet allowing an *ad libitum* intake of protein and fat and restricting only carbohydrates. There is considerable clinical evidence indicating the efficacy of such a plan.

GOLDNER, MARTIN G., VOLK, BRUNO W. AND LAZARUS, S. S.: *The effect of cobaltous chloride on the blood sugar and alpha cells in the pancreatic islets of the rabbit.* Metabolism. 1,6,544. Nov. 1952.

Pancreas obtained from female rabbits, sacrificed 24 to 48 hours after intravenous administration of cobaltous chloride, showed severe selective damage to the alpha cells. The blood sugar level rose significantly soon after the injection and returned to the normal range within four to five hours. A second intravenous injection of cobalt repeated after 48 hours was followed by a second rise of the blood sugar level. No hypoglycemic levels were encountered after the administration of cobaltous cloride.

Franz J. Lust.

GAMAMOTO, A. AND HARADA, K.: *On food poisoning due to S. typhi-murium from goose eggs.* Gunma J. Med. Sci., 1, 3, July, 1952, 87-95.

Eight patients and one carrier were all infected from eating goose eggs. The clinical symptoms were those of routine Salmonella food poisoning. One of the patients died 26 hours after the onset and the others recovered in 2 or 3 weeks. Bacterio-serological examination detected *S. typhi-murim* from the blood of 4 cases out of 7, and from the feces of all cases. In 2 geese out of the 3 suspected, the organism was demonstrated—being detected in the feces of the male and from the principal organs of the female, which was killed. It is said that, prior to this report, in only 2 cases has *S. typhi-murium* from geese ever been detected.

SOLOMON, H. A., KREPS, S. I., BURNESS, L. B. AND WINTER, R. E.: *Emergency experiences in an epidemic of food poisoning.* Am. Pract. & Dig. Treat., 4, 1, Jan. 1953, 2-5.

An epidemic of food poisoning, probably caused by staphylococcic enterotoxin, is described, which affected 48 persons following a banquet, and was due to a mayonnaise dressing which had not been refrigerated. All patients recovered under treatment for shock and dehydration. The authors make the report as an example of what can be done in a small, over-crowded hospital under emergency conditions, as planned for Civil Defense in a catastrophic emergency.

ELLISON, H. S. AND HOLLEY, H. L.: *Hypokalemia due to insufficient dietary intake: report of two cases with presenting respiratory symptoms.* Am. Pract. & Dig. Treat., 4, 1, Jan. 1953, 6-8.

Two cases, in whom the presenting symptom was marked respiratory distress, and in whom low blood potassium levels were found, were relieved by the administration of potassium chloride. Helpful in the diagnosis of the respiratory symptom was the prolonged Q-T interval and flattened T waves of the cardiograms. In both cases, owing to esophageal blockage, the diet

had been insufficient for several months. In such instances of long standing deficient food intake, potassium deficiency may suddenly cause severe respiratory difficulty and distress without any other clinical signs of potassium lack.

SPARKS, M. I.: *Treatment of late complications of diabetes.* Am. Pract. & Dig. Treat., 4, 1, Jan. 1953, 9-11.

The two late complications of diabetes which Sparks describes are (1) retinitis, (2) neuritis. In one case diabetic retinitis has been held in abeyance for 7 years by the use of a high protein diet (150 gm. daily), a procedure which, incidentally, caused albuminuria eventually to disappear. In a case of severe neuritis of the right thigh and leg, excellent results were obtained with BAL. Only 25 to 50 mg. intramuscularly twice daily were given for 3 weeks, with eventual complete relief, although other forms of treatment had failed. The author noted a great improvement in the mood and mental condition of this patient as well.

EDITORIAL

THE VALUE OF THE ENRICHMENT OF BREAD

We have frequently commented upon the value to our population of the enrichment of flour and bread and have stated that this maneuver, which was mandatory during World War II, represented the greatest forward step in improving our general nutrition.

This opinion is perhaps confirmed by the recent work of Kark and his associates (1), although by an unexpected finding. Briefly, these investigators carefully screened 451 newly admitted alcoholics at the Bridewell (The House of Correction of the City of Chicago), during the "pellagra season," and they made detailed, serial, physiological, and biochemical observations on 24 selected alcoholics before and after treatment. The hemoglobin average was high, but about one-third of the alcoholics were grossly underweight. The fasting hour-excretion of thiamin and riboflavin were normal. Only 2 cases of pellagra were found, only one with possible beriberi, 3 with florid ariboflavinosis, one with Wernicke's encephalopathy and 7 with possible nutritional polyneuropathy. In all, only 2.2 percent of these men were considered to have clinical evidence of avitaminosis. To explain this unexpectedly low incidence of avitaminosis, one must fall back upon the fact that the vitamin enrichment of bread was begun in Chicago in 1940-41, and alcoholic pellagra practically disappeared from Cook County Hospital in 1942-43 when niacin for flour enrichment was first made by the ton. It is well known that the average alcoholic on skid row eats mostly soups and fortified bread.

On the basis of their findings, the authors are justified in taking the position that primary avitaminosis is uncommon in the United States today.

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BOOK REVIEWS

DISEASES OF THE DIGESTIVE SYSTEM. Edited by Sidney A. Portis, B.S., M.D., F.A.C.P. Lea and Febiger, Philadelphia, Pa., 1953. $20.00.

In its third edition, this volume of more than 1100 pages, well illustrated and beautifully printed, represents the contributions of 57 authorities on various aspects of gastro-enterology. The chapter on hyperinsulinism and fatigue, written by Portis himself, deals with a subject which Portis has done so much to bring before the profession, and the longer one practices, the more he becomes convinced of the unsuspected commonness of this syndrome, and its alleviation by suitable treatment. The inclusion of chronic ulcerative colitis under the heading of allergy will not meet with everyone's approval, because etiological theories are here so diverse. For example, the disease is claimed, more or less openly, by the psychiatrists, and not without considerable evidence of a more-or-less convincing nature. Kate Daum's chapter on dietetic concepts of gastrointestinal disease is particularly noteworthy, inasmuch as she makes it plain that a "normal" diet is needed, no matter what the disease may be. Some physicians, who do not care to admit the fact, now place peptic ulcer patients on an average diet, and declare (privately) that their results are better than with Sippy-like regimes. Walter Palmer's article on peptic ulcer is masterly, and conservative with respect to the various forms of treatment employed. Arthur Bloomfield describes in 2 or 3 pages all that is really known about gastric secretions as they apply to clinical medicine. Schindler, as always, produces an impressive description of gastritis.

These, and many other chapters, all of which bring gastro-enterology up-to-date, form a volume which, for its practical value, seriously challenges for excellence any book or system yet written on this vast subject.

DIE PSYCHIATRIE DES MORBUS ADDISON insbesondere seiner chronischen Formen (Sammlung

psychiatrischer und neurologischer Einzeldarstellungen). (The Psychiatry of Addison's Disease, by W. A. Stoll, M.D., Zuerich-Burghoelzli. 144 pages, $4.30)

This very thorough monograph on Addison's Disease offers a great deal of information to readers of various specialties: it gives a comprehensive survey of the modern concept of the physiology of the adrenal cortex. This is followed by a short history of the disease. The author quotes from Addison's first comprehensive study (from the year 1855): "the voice is puny and puerile, the patient speaking with a kind of indescribable whine and his whole demeanor is childish. The author continues to mention other emotional disturbances: in sleep, consciousness, comatous states and schizophrenia-like syndromes; i.e. already Addison was fully aware of the psychiatric syndrome of this illness which bears his name.

The major part of the monograph is devoted to a detailed description of 32 cases. Information about the cases is given under the following headlines: (1) general information as to age, sex, body-type, occupation, somatic diagnosis, duration of illness. (2) History and treatment of somatic illness. (3) Psychiatric history, past and present. The present history contains detailed descriptions of the patient's basic psychic attitude (Grundstimmung), gives certain informations as to primary instincts (hunger, sex), periodicity of symptoms, and contains comments on the psycho-somatic aspect of the illness. In the same chapter Dr. Stoll also deals with the question, how the patient's ego perceives his illness and how he deals with his illness. Finally the author comments upon the patient's capability of social adjustment. This part is followed by an evaluation of the material presented in this book.

Since this reviewer is a psychiatrist herself, the following remarks will deal with the psychiatric aspects of the monograph only. When reading the various case presentations, it is felt that there was a great wealth of material, but that it is regrettable that all of the material was presented from a phenomenological, descriptive point of view only and that no attempt was made to search for the dynamic structure of the psychiatric syndrome. All of the patients seem to have various characteristics in common, e.g. they show a more or less passive, withdrawing behaviour, also premorbidly, they all, with the exception of one case (No. 11, and Dr. Stoll adds: information could not be obstained) show changes and disturbances in sexual adjustment (impotence, frigidity, loss of interest in sex, etc.) In order to elaborate on the relationship of the somatic illness to the psychiatric syndrome it would be essential to know much more about the dynamic structure of the concomitant psychiatric syndrome. The author himself seems to be aware of this problem, since he mentions in his last chapter ("Psychotherapeutic Hints") that certain schools of thought in this country expect that in any case of hormonal imbalance a psychiatrist ought to be consulted. He continues to say that this is too much expected since "psychotherapeutic understanding is anchored deeply and generally amongst physicians in Switzerland." Professor M. Bleuler, in his foreword to the monograph, raises a number of interesting questions as to the stress phenomenon and its relationship to psychiatric syndromes. He adds that the book ought to be helpful to the psychiatrist in his attempt to understand the physiology and pathology of the adrenal cortex, and furthermore enables the psychiatrist to participate more fully in discussions of *Selye's* Adaptation Syndrome. The book fulfills these purposes, but leaves the psychiatrist with the wish for more and "deeper" information about the structure of the psychiatric syndrome.

Ellen I. Simon, M.D.
New York 28, N. Y.

The Roentgen Aspects of the Papilla and Ampulla of Vater. Maxwell H. Poppel, M.D., Harold G. Jacobson, M.D. and Robert W. Smith, M.D. Cloth. $8.50, pp. 195 with illustrations, Charles C. Thomas, Publisher, Springfield, Illinois. 1953.

Poppel and his associates have continued in another monograph the excellent piece of work carried out by Poppel alone in the extensive treatise on Roentgen Manifestations of Pancreatic Diseases (by Charles C. Thomas—1951). This second book should really be considered a companion piece with the first. The subject matter is a specialized extension of the comprehensive discussion by Poppel on the pancreas and its surrounding structures.

The authors have used as their guiding thought in this latest treatise the complete presentation of the roentgen aspects of the anatomy, physiology and pathological states of the Vaterian region. The authors have collected specific data as the result of special roentgen and microscopic studies on the normal Vaterian segments of over 100 post mortem specimens and have obtained many surgical and post mortem follow-up on cases of Vaterian disease. About this data and compilation of material they have skillfully woven a comprehensive, erudite and authoritative description of all the fundamental phases of study of the Vaterian region.

The book is divided into 10 chapters with an introduction and a thorough historical review. Chapters 3, 4 and 5 concern themselves with an exhaustive description of the roentgen anatomy of the Major Papilla, the Ampulla of Vater and the Sphincter of Oddi together with a discussion of the embryological development of those structures. The special anatomico-roentgen study of over a hundred post mortem specimens described in Chapter 3 is an outstanding effort.

In Chapter 6 there is an all inclusive description of the congenital variant of the Vaterian segment. Chapter 7 deals exhaustively with the roentgen methods of examination of this region. Chapters 8 and 9 are comprehensively written sections on the roentgen aspects of disease of the Vaterian segment with an abundant amount of case material succinctly but adequately presented.

The last chapter in the book is one of the most valuable and is patterned after Poppel's first book. It deals with the differential diagnosis of a mass in the Vaterian region and becomes really a discussion of disease in the upper abdomen.

The book is profusely illustrated (over 100 repro-

ductions) and the quality of these reproductions is exemplary. The "bullet-spots" in Chapter 3 under the special post-mortem anatomico-roentgen studies are particularly noteworthy. As in Poppel's first book there is a comprehensive bibliography and an excellent index. The format of the book is in line with its general high quality.

All in all, the volume belongs on the shelf of every radiologist, and gastro-enterologist as a "matching-piece" to "Roentgen Manifestations of Pancreatic Disease." It will also prove valuable to the anatomist, physiologist, general surgeon and internist and any future investigators dealing with the Vaterian region.

Franz J. Lust.

GENERAL ABSTRACTS

CURTIS, W. S.: *Chronic gastritis: a review of the literature.* Radiology, 59, 3, Sept. 1952, 317-323.

Curtis states that while chronic gastritis is a very controversial subject, chronic gastritis is a definite pathological entity which is mistaken by roentgenology, by gastroscopy and by surgery, for the entities of cancer and ulcer. He admits that chronic atrophic gastritis may be a precursor of cancer, but doubts if chronic hypertrophic gastritis is. The roentgenologist sees changes in the antrum which are difficult to classify—the surgeon can see them, the gastroscopist usually cannot see them, and the pathologist reports them as "normal stomach." What do these antral changes signify? They must be recognized as benign changes unrelated to malignant disease. A single illustration is given, in which films of a barium-filled stomach show great irregularities and/or spasm in the antrum.

COTTON, R. T. AND ZELMAN, S.: *Needle biopsy of the liver as an aid in the diagnosis of malignant tumors.* Jour. Kansas Med. Soc., July 1952.

Of 18 cases of malignant disease subjected to needle biopsy of the liver during life, nine were diagnosed as positive by the biopsy. Of the remaining cases, 6 had no liver metastases at autopsy, and the other 3 showed only small or localized metastases to that organ. Obviously, needle biopsy will reveal the presence of malignant tumor with rewarding frequency, particularly if the liver is enlarged. One of the positive cases was a primary liver cell carcinoma. In 2 cases the needle biopsy of the liver was the only definite evidence of a malignant process in the body.

SCOTT, W. G. AND SIMRIL, W. A.: *Newer radiopaque media for oral cholecystography.* Am. J Roentgen. Rad. Therapy. 69, 1, 78. Jan. 1953.

The newer cholecystographic radiopaque media, iodoalphionic acid (priodax), cyclohexane carboxylic acid (monophen), and triiodo-phenyl propanoic acid (telepaque) have made cholecystography a simple, convenient and accurate test of gallbladder function. Of these compounds the newest, telepaque, is the only "triiodo" compound with three iodine radicals. The other two are "diiodo" compounds with two radicals. Telepaque contains 15% more iodine than the others. This increased iodine content largely explains why it produces gallbladder shadows of increased density. For this same reason telepaque can be ingested in the morning and satisfactory cholecystograms obtained the same afternoon. It can be administered immediately after the barium meal in the morning and excellent cholecystograms made four hours or six hours later, but this is not recommended as a routine procedure. This compound is recommended for obese patients. In patients weighing 150 lbs. or less the dose can be reduced to two grams (4 tabl.), which is better tolerated. The increased density of telepaque results in the demonstration of the cystic, hepatic and common ducts 5-15 min. after fatty meal.

Franz J. Lust.

JENKINSON, D. L. AND BATE, L. C.: *Volvulus of the stomach, case report.* Am. J. Roentgen, Rad. Therapy. 69, 1, 54. Jan. 1953.

The reported case presented typical roentgen and surgical findings of a complete organo-axial volvulus and mesenterio-axial rotation of the stomach, both of 180 degrees. Surgical treatment consisted of reduction of the volvulus and posterior gastroenterostomy.

There was a recurrence of the volvulus, although the patient's general condition was very much improved. The importance of differentiating true volvulus of the stomach from simple rotations and high positions of the stomach is emphasized.

Franz J. Lust.

DEBRAY, C., PERGOLA, F., AUBRION, I.: *The Ano-sigmoidal inhibitory reflex.* Arch. mal. app. dig. No. 1, p. 5. 1953.

The study by graph of the movements of the intestine reveals the existence of a reflex, originating in the anus, which has the effect of interrupting the contractions of the rectum and the sigmoid. We have named it the "ano-sigmoidal inhibitory reflex." As far as we know, this reflex has never been studied in humans. Youmans and Meeck described it in dogs in 1937.

The stimulation of the anus or of the part immediately above it regularly inhibits the contractions of the sigmoid, and in one out of three cases decreases the tonus. The sudden interruption of contractions immediately follows the stimulation of the anus. On an average this lasts from 1 to 3 minutes. Stimulation of the anus for a second time is followed by a further pause in the contractions; but if the stimulation is continued, the contractions start again after a few minutes. The reflexogenic zone is restricted to the sphincter region and just above the sphincter region of the anus. The inhibited region is extensive as we have verified by studying the graphs of the movements of the transverse and descending colons in patients who have undergone resection for cancer.

The motor impulse of this reflex is conducted by the sympathetic adrenergic inhibitory fibers. Youmans and Meeck have actually discovered that —in dogs— an interruption of contractions can no longer be ob-

tained after sympathectomy. The starting point of the reflex is probably the mucous membrane of the anus, but it is difficult to separate the physiology of the mucous membrane from that of the sphincter muscle.

The physiopathological role of this reflex is as yet uncertain. It is a very special one as the stimulation of the mucous membrane of the anus causes a pause in contractions whilst the stimulation of the remaining part of the digestive mucous membrane causes hyperperistalsis. It is probably involved in the mechanism of continence: besides the contraction of the anal sphincter, the bringing into play of this reflex, by causing rectosigmoidal atony causes the sensation of the need for evacuation, due to the pressure of the feces on the rectal walls, to disappear.

In pathology it is possible for this reflex to play a part in colonic constipation and inefficient defecation characteristic of which is the disappearance of the sensation of want. Furthermore, anal irritation, as in hemorroidal anitis, may cause a reflex atony of the colon and of the rectum thus causing constipation.

Berg, H. M.: *Antral gastritis.* Radiology, 59, 3, September 1952, 324-335.

Several cases are presented illustrated by x-ray films of the stomach in which significant antral filling defects were present. Since carcinoma could not be ruled out, resection was done and a pathological report of atrophic arthritis of the antrum (in 3 cases of hypertrophic pylorus) was returned. The article illustrates the difficulty in making a diagnosis of antral gastritis. Gastric resection should be done when doubt exists as to the presence of cancer.

Johnson, E. K. and Mangiardi, J. L.: *Diaphragmatic hernia in the newborn.* Am. J. Dis. Child., 84, 4, 436-438.

Paraesophageal hiatus hernia is usually found only in adults. The paradox of finding an adult type of diaphragmatic hernia in a newborn infant is unique. The regurgitation with cyanosis on every attempt to swallow led to the diagnosis which was made by taking an x-ray picture after instillation of iodized oil. Successful repair was done via the abdominal approach on the second day of life. The infant died a month after birth from suffocation associated with bilateral interstitial pneumonia. This is the only case of such a hernia being discovered in a newborn infant.

Billington, B. P.: *Some clinical observations on acute infective hepatitis.* Med. J. Australia, August 30, 1952, 297-301.

Billington's 43 cases of (urban) acute infective hepatitis showed an unusual incidence of severe pain in the liver, neurological manifestations and multiple sites of bleeding. Some of the cases required blood transfusions. Meningitic symptoms were encountered, obviously of virus origin, but they were transient.

Mellins, H. Z.: *Esophageal ulcer in infancy.* Am. J. Roentgen., Rad. Ther. and Nuclear Med., 68, 4, Oct. 1952, 634-638.

Pathological and clinical studies indicated that esophageal ulcer in infancy, though rare, is more common than previously thought. Hematemesis is the cardinal sign. X-ray examination should be done in every case and repeated films are necessary to demonstrate the crater. The author presents an example of ulcer of the esophagus in a newborn infant, diagnosed by x-ray and verified at post-mortem. The possibility of ante-mortem diagnosis is emphasized.

Ismay, G.: *Painful spasm of the esophagus ("corkscrew" esophagus).* Brit. Med. J., Sept. 27, 52, 697-8.

"Corkscrew" esophagus is a rare condition in which swallowing is painful and in which spasms of the esophagus give it an x-ray appearance of a corkscrew. A case is reported. Ismay suggests it is due to degenerative changes in Auerbach's plexus. Atropine gave no relief. Temporary relief was obtained with pentamethonium bromide.

Streeten, D. H. P. and Ward-McQuaid, J. N.: *Relation of electrolyte changes and adrenocortical activity to paralytic ileus.* Brit. Med. J., Sept. 13, 1952, 587-592.

Thirteen patients with paralytic ileus were studied to discover the relation of adrenocortical hyperactivity and of potassium and chloride deficiency to the condition. Evidence of adrenocortical hyperactivity during ileus consisted of abnormal prolongation of the postoperative eosinopenia, excessive potassium loss in the urine and retention of water, sodium and chloride. On recovery there was a rise in the eosinophil count, a diuresis of water, sodium and chloride and a retention of potassium. Potassium deficiency was also suggested by EKG changes—depression of ST and prolongation of QT. The importance of replacing lost electrolytes, particularly potassium, in ileus, is emphasized. Most patients recover provided their electrolyte balance is restored and complications dealt with.

Lytle, F. T.: *Diagnosis of carcinoma of the right colon.* Journal-Lancet, Oct. 1952, 473-5.

After reviewing 21 cases of cancer of the ascending colon, Lytle finds that abdominal pain is the most common symptom and the most common first symptom in this disease, and this pain is due to obstruction. In about 66 percent of cases a palpable mass is present when the patient presents himself to the physician. In 60 percent anemia is present. Occult blood is found by the Benzidine test in almost 100 percent of cases far enough advanced to give symptoms. Any patient with "secondary" anemia should be studied to rule out cancer of the right colon.

Stammers, F. A. R.: *Four cases of obstruction at the duodeno-jejunal junction.* Brit. Med. J., Nov. 8, 1952, 1013-1015.

In 3 of the cases, the partial obstruction was due to carcinoma of the gut in 2 cases and of the pancreas in 1 case. In the fourth case, adenopathy of undetermined nature was found. Epigastric discomfort or pain, vomiting, and the presence of bile in the vomitus all suggested partial high small-gut obstruction. The histories were of short duration, a matter of weeks only. One death and three recoveries resulted from suitable operations.

WAPSHAW, H.: *Changes in the duodenal content following carbachol.* Brit. Med. J., Nov. 8, 1952, 1027-1028.

Pure duodenal juice was obtained by applying continuous suction to two Ryle's tubes, one of which lay in the stomach, the other in the duodenum. An intramuscular injection of 0.25 mg. of carbachol (carbaminoylcholine chloride) was given to 10 fasting young men. An increase in volume of the duodenal content resulted in 7, an increase in lipase in 8, these effects being most marked 30 minutes after the injection. This indicates that the drug excites the external pancreatic secretion. It also stimulates an increased flow of bile.

BORRON, R. W. J., GOLDBERG, L., AND KNOWLTON, E. E.: *Polyp of the duodenal bulb.* Radiology, 59, 4, Oct. 1952, 570-572.

The duodenal bulb is rarely the site of any lesion except ulcer, but the present study brings to 22 the number of benign adenomatous polyps in this location described in the literature. The symptoms were very similar to those of peptic ulcer. The lesion was discovered by x-ray and successfully removed. The patient was a 70 year old woman.

MUKERJI, S. K.: *Infantile cirrhosis of the liver.* J. Indian Med. Assn., XXII, 1, Oct. 1952, 6-12.

The author attempts to assess etiological and therapeutic factors in infantile hepatic cirrhosis in India. While diet plays a definite role, there are probably other (toxic) factors, at present not recognized. The use of essential amino acids, vitamins and lipotropic agents frequently brings about recovery, but there are instances of failure and there are also instances of apparently spontaneous recovery.

MANGALIK, V. S. AND MISRA, S. C.: *Primary intestinal tuberculosis.* J. Indian Med. Assn., XXII, 1, Oct. 1952, 12-14.

The authors studied 26 specimens taken from cases which, in America, would probably be labelled regional ileitis or Crohn's disease. The absence of caseation and of tubercle bacilli is emphasized. However, the authors are going to pursue the subject further and inject guinea pigs with such material to discover if human or bovine tubercular organisms may be present.

ARNOLD, W. T.: *Prolapsed gastric mucosa.* Texas State M. J., 48, 1, Nov. 1952, 758-762.

Arnold presents diagnostic and other data on 17 cases diagnosed as prolapsed gastric mucosa. The usual symptoms are epigastric pain, nausea with vomiting, vague indigestion, epigastric fullness, and bleeding. Diagnosis rests with the x-ray examination, the characteristic defect being an "umbrella-like or mushroom-shaped" configuration in the base of the duodenal bulb with a variable prepyloric mucosal pattern. Medical treatment, smooth diet, sedatives and atropine usually suffice to bring comfort. In some cases, however, surgery is required. Gastro-enterostomy or even subtotal gastrectomy has been employed, but excision of the extruded mucosa with pyloroplasty is probably the operation of choice.

OWEN, J. G.: *Pyogenic granulomata simulating rectal polyps.* Bull. Mason Clin., 6, 3, Sept. 1952, 105-109.

Owen reports 2 cases in which postoperative granulation tissue in the rectal wall closely resembled rectal polyps in gross appearance. In one case the resemblance was so marked as to deceive a physician into recommending colonic resection. Biopsy removal and microscopic examination of all rectal polyps and other suspicious lesions should be routine.

VANDENBERG, H. J.: *Advances in surgery for gastric cancer.* Harper Hosp. Bull., 10, 5, Sept.-Oct. 1952, 125-132.

More thorough operations for gastric cancer have given improved results. The overall 5 year salvage still remains at 10 percent. Radical subtotal gastrectomy with splenectomy for lesions of the distal stomach is recommended. Further study should be directed toward removal of the body of the pancreas with the above procedure. The results of total gastrectomy, splenectomy and partial pancreatectomy for cancer of the upper two-thirds of the stomach are described and a technique summarized.

ROUSE, M. O., PATTERSON, C. O. AND BAILEY, H. A.: *Regional enteritis.* Texas State J. M., 48, 11, Nov. 1952, 763-768.

The authors' analysis of 46 cases of regional ileitis tends to re-emphasize the unsatisfactory status of this disease both from the etiological and diagnostic standpoints. Diagnosis may be made by x-ray, but usually at laparotomy. Nothing whatever is known for certain about its cause. In treatment, the trend is to treat Crohn's disease medically until some complication such as fistula-formation or obstruction makes surgery imperative. Anemia is not always present, is usually of simple type when found, and is considered to be of deficiency origin. The leading symptom is abdominal pain.

POWELL, J. AND WHITE, R. R.: *Surgical treatment of duodenal ulcer.* Texas State Med. J., 48, 11, Nov. 1952, 754-757.

460 operations for duodenal ulcer during a 20 year period are reveiwed. A 70 to 75 percent subtotal gastrectomy appears to be the operation of choice and carried only a 1.1 percent mortality. Pain, obstruction, hemorrhage and perforation are the indications for surgery. Gastro-enterostomy is reserved for elderly patients with chronic obstruction and a low gastric acidity.

WINTHROP NAMES MANAGER OF BOSTON SALES OFFICE

E. F. Kittredge has been promoted to the position of manager of the Professional Service Office in Boston, Mass., it was announced by Charles B. McDermott, vice-president and director of sales, Winthrop-Stearns Inc.

Prior to his present appointment, Mr. Kittredge was a Special Hospital Representative for Winthrop in the New York area. He joined the drug manufacturer in 1945 as a sales representative on its Metropolitan "A" Division.

A native of Massachusetts, he has had extensive experience in the pharmaceutical field in that state, where he is a registered pharmacist. From 1941 to 1945 he served with the U. S. Army, mostly in the Pacific theatre, and was discharged with the rank of Captain. Mr. Kittredge was recalled by the Army in 1951 and served one year in Germany.

NEW WINTHROP ANTIEMETIC TERMED MOST EFFECTIVE IN PREGNANCY

Apolamine, an antiemetic compound recently introduced by Winthrop-Stearns Inc., is called the most effective drug in the treatment of nausea and vomiting in pregnant women, according to a report in the Journal of the Tennessee Medical Association (46:132, April 1953). The drug was part of general therapy, including psychotherapy and dietary restrictions.

An equally significant clinical finding, the authors state, was the short time required to control the nausea and vomiting. All the patients who benefited by the drug did so in less than four days after therapy was initiated, observe Drs. Sam C. Cowan, Jr., and Richard C. Stuntz, of Nashville, Tenn. Their studies of hyperemesis gravidarum were conducted at Vanderbilt University Hospital and St. Thomas' Hospital in Nashville.

Apolamine was administered to 85 patients. Results showed that 63, or 74.1 per cent of the patients, stopped vomiting and no longer experienced nausea on a minimum dose of one Apolamine tablet three times daily. Four, or 4.7 per cent, stopped vomiting and had only occasional nausea. Eight, or 9.7 per cent stopped vomiting and reported mild daily nausea, while 11.8 per cent showed no improvement. A total of 88 per cent of the patients studied obtained relief of symptoms. The investigators cite another clinical study in the literature, indicating 76 per cent effectiveness with Apolamine in treating nausea and vomiting.

They add that "one of the remarkable aspects of the study was the time required for results to become apparent." Five patients required less than 24 hours, 11 less than 72 hours and 59 were relieved in less than 96 hours.

A recurrence of symptoms was noted in 15 cases, following discontinuance of Apolamine. This group did not benefit from phenobarbital, but the symptoms again disappeared once Apolamine was resumed in its initial dosage, the doctors say.

Apolamine is supplied by Winthrop in bottles of 100 tablets.

LEVOPHED ADMINISTERED TO TREAT ANAPHYLACTIC SHOCK FROM PENICILLIN

Anaphylactic shock following use of penicillin was successfully treated with a glucose solution containing the vasoconstrictor Levophed, when other therapeutic agents failed to restore consciousness to a patient, according to a report in the Ohio State Medical Journal (49:305, April 1953).

The reaction occurred in a 55-year-old ambulatory woman with a chronic infection of the upper respiratory passages of unknown origin, reports Dr. Igor F. Nikishin, associated with Aultman Hospital in Canton, O. While sensitivity reactions in this case were noted after repeated treatments with various antibiotics, none had been observed from previous penicillin injections.

Several minutes following an intramuscular injection of 300,000 units of crystalline penicillin, however, the patient became cyanotic, dyspneic, began to vomit and collapsed. Physical examination revealed no measurable blood pressure and no pulse of the radial artery. Cortisone, epinephrine, antihistamines and other drugs, plus oxygen and plasma failed to bring about consciousness and the blood pressure remained unobtainable.

An intravenous infusion of five per cent glucose solution to which four cc. of Levophed (norepinephrine) had been added was started. The patient regained consciousness within ten minutes, the blood pressure rising to 60/30. Recovery was uneventful, Dr. Nikishin states. Levophed is supplied by Winthrop-Stearns Inc.

"It is of interest to note that neither the antihistaminics alone, nor their combination with transfusion of plasma, could restore the blood pressure. The pressure was gradually restored to normal following an intravenous injection of a solution containing Levophed," he says.

Other investigators have cited "excellent" results with Levophed in treating shock accompanying myocardial infarction.

DRAMATIC RESULTS WITH ISUPREL CITED IN TREATING EMPHYSEMA

Use of Isuprel, a sympathomimetic aerosol, has produced "very dramatic relief following a few inhalations" in patients experiencing bronchiolar spasm accompanying emphysema, according to Dr. Louis L. Friedman, Birmingham, Ala.

Writing in the Journal of the Medical Association of the State of Alabama (22:255, April 1953), he calls the ultimate prognosis in emphysema "poor" but adds that Isuprel and similar drugs are indicated in relieving spasm. Regular and routine use of Isuprel is frequently necessary.

Dr. Friedman recommends use of a barbiturate, bromide or any satisfactory sedative in acute attacks of dyspnea to relieve the apprehension of the patient. Anxiety tends to aggravate all of the clinical symptoms, especially dyspnea, he notes.

Other therapeutic measures suggested are: abdominal belts, breathing exercises, elevating the foot of the patient's bed, and weight-reduction diets for overweight cases.

Isuprel is supplied by Winthrop-Stearns Inc.

PARKE-DAVIS GIVES INCREASE TO 1,400 SALARIED EMPLOYES; 2,300 PRODUCTION WORKERS REMAIN ON STRIKE STARTED MAY 15

Detroit.—Parke, Davis & Company recently announced a general increase of five cents an hour, or

$8.65 a month, for 1,400 classified salaried employes, while 2,300 production workers remained on the strike which began May 15.

The pharmaceutical firm also froze into the base rate of the classified salaried employes all but five cents an hour of the current cost of living allowance, leaving the monthly cost of living allowance at $8.65 a month, or five cents an hour.

Harold K. Daniels, personnel relations director, said the increase for the classified salaried employes corresponds to the wage raise of five cents an hour offered to the striking production workers May 21, and to the recent increases granted in the automobile industry to salaried personnel.

Daniels added that Parke-Davis had converted from the Detroit cost of living index to the new national index, also corresponding to the adjustments in the auto industry.

Union Slated to Hold Membership Meeting

Meanwhile, the first general membership meeting of Local 176, United Chemical Workers (CIO), since the strike started was scheduled for 2 p.m. Thursday, June 11, at Our Lady of Help Auditorium, 3156 East Congress. At that time, the striking employes will consider the final offer made by the company May 21.

Major item in the dispute concerns the union's demand that the entire cost of living allowance (19 cents) be frozen into the base rate. The company has offered to freeze all but five cents (14 cents).

Daniels said most of the 2,300 strikers could be recalled by Monday, June 15—exactly a month after the strike began—if they accept the company's proposal at the Thursday meeting.

Daniels said Parke-Davis had analyzed a national survey of approximately 200 pharmaceutical and chemical companies, employing 60,000 people who were represented by the United Chemical Workers.

"We appear to lead the field on most benefits, and in no case are behind the majority," Daniels declared.

SECOND INTERNATIONAL CONGRESS OF CARDIOLOGY

The Second International Congress of Cardiology will be held in Washington, D. C., September 12-15, 1954. It will be immediately followed by the Annual Scientific Sessions of the American Heart Association, September 16-18, 1954. The opening session will be held in the auditorium of Constitution Hall at 10:30 A. M. on Sunday, September 12, 1954, with addresses of welcome. A reception will be given at the Mayflower Hotel at 5:00 P. M. on the same day for all Members of the Congress and their families. A banquet will be held September 15, 1954 at 7:30 P. M.

The Scientific Sessions lasting for three days will include formal papers, panel discussions, clinical pathological conferences and visits to important medical centers in Washington and Bethesda. The program will be printed in French, Spanish and English. Immediate translation of some of the papers and discussions will be made in three languages.

A series of Post-Congressional visits and conferences to at least 20 of the leading cardiac clinics in different parts of the U. S. and Canada has been arranged by special committees of local Heart Associations in the various cities.

BRAZILIAN HEALTH OFFICIAL PRAISES RESEARCH ACTIVITY OF U. S. PHARMACEUTICAL INDUSTRY

Detroit.—An official of the Brazilian Ministry of Health lauded the "importance the American pharmaceutical firms give to research aspects of their business."

Dr. Roberval Cordeiro de Farias, director of control for the Ministry of Health, said after a visit at Parke, Davis & Company:

"Seeing all the research that goes on in the pharmaceutical industry gives us strengthened confidence in your products."

Dr. Farias is on a month's tour of the United States, conferring with executives of various drug companies and metropolitan health departments and observing progress in the pharmaceutical industry.

Speaking through a Parke-Davis interpreter, Dr. Farias said, "Brazil always has had great confidence in American pharmaceutical products, but after seeing these laboratories, we have even greater confidence."

The Brazilian doctor came to this country May 25 and, prior to his Detroit visit, studied the organization of the Food and Drug Administration in Washington. During his stay in Detroit, Dr. Farias was guest of Parke-Davis and the Detroit Board of Health.

OSLER

Philadelphia, June 6. — Ceremonies at Philadelphia General Hospital honoring the late Sir William Osler June 5th were highlighted by presentation of the painting, "Osler at Old Blockley," to the hospital by Dr. George E. Farrar, Jr., medical director of Wyeth Laboratories.

The painting, by Dean Cornwell, N. A., is one of the "Pioneers of American Medicine" series commissioned by Wyeth to depict great moments in the history of medicine in this country.

Alfred G. Scattergood, president of the hospital's board of trustees, accepted the painting for the hospital. Speakers on the hour-long commemorative program were Dr. David W. Kramer, president of the hospital medical board; Dr. John W. Deitrick, professor of medicine at Jefferson Medical College, and Dr. Jonathan C. Meakins, emeritus professor of medicine at McGill University, Montreal, where Osler studied and taught before coming to Philadelphia in 1884.

Osler was one of the most brilliant surgeons and teachers of his time, yet a controversial figure. He revolutionized the teaching of medicine by adding bedside observation of living patients to the study of textbooks. His lectures were overcrowded, and interns usually accompanied him on his daily ward visits.

Cornwell's painting captures Sir William in a typical mood, chatting with an infirm woman in the hospital yard—accompanied by interns as usual—while on his way to the old post house, which can be seen in the background.

The post house is now the Osler Memorial and Blockley Historical Museum, in which the painting will be hung.

Osler left Philadelphia in 1889, becoming a member of the Royal College of Physicians in London.

Another painting in the "Pioneer" series, "Conquerors of Yel-

low Fever," commemorating the work of Dr. Walter Reed and associates, will be presented to the Walter Reed Army Medical Center in Washington later this summer.

BREON MARKETS STEROID HORMONE WITH MILD ANDROGENIC EFFECT

The steroid hormone, methylandrostenediol, in a buffered aqueous suspension containing 50 mg. per cc. in 10 cc. multidose vials, has been introduced by George A. Breon & Company under the trade name Nabadial.

While closely related to testosterone, Nabadial has a mild androgenic effect and will produce practically no secondary male characteristics in women. By preventing the loss of nitrogen, it helps the body retain a positive nitrogen balance. The hormone also stimulates bone and tissue metabolism, and provides added vigor and muscular strength. Nabadial is well tolerated and produces almost no side reactions, Breon notes.

Nabadial is indicated for the symptomatic relief of certain forms of breast cancer, menopause, dysmenorrhea and other menstrual dysfunctions. It is also effective in treating malnutrition and physical exhaustion accompanying prolonged illnesses or convalescence.

Average dosage is 0.5 to one cc. injected intramuscularly two to five times a week, although the individual patient's condition will determine the precise dosage, the company points out.

ODIORNE IS NAMED MANAGER OF CANCO PLANT AT LEMOYNE

Raymond J. Odiorne of Baltimore, Md., has been named manager of American Can Company's new can-making plant at Lemoyne, Pa., R. B. Thompson, manager of manufacture for the container-making firm's Atlantic Division, announced.

Odiorne already has assumed his duties at the new plant, which is scheduled to begin operations later this year, Thompson said. The Lemoyne plant is one of 58 operated by Canco in the United States, Canada and Hawaii. When in full operation, it is expected to employ 450 to 475 persons.

The new plant manager was graduated from Merrimac, Mass. high school and later studied mechanical engineering at Newark (N. J.) Technical School. He went to work for Canco as a floorman in the Hudson factory at Jersey City, N. J., in July of 1930. He spent the next 18 years there, serving successively as assistant foreman, foreman, assistant general foreman, assistant to the plant manager, and general foreman.

Odiorne has been assistant manager of the company's Maryland factory at Baltimore for the past two years.

"His selection as manager of Canco's newest can-making plant is in keeping with the company's traditional policy of promoting from within the organization," Thompson said.

263RD CONSECUTIVE DIVIDEND DECLARED BY DIRECTORS OF PARKE, DAVIS & CO., WORLD-WIDE PHARMACEUTICAL FIRM

Detroit, June 24.—Directors of Parke, Davis & Company recently declared the world-wide pharmaceutical firm's 263rd consecutive dividend.

A payment of 35 cents a share will be made July 31, 1953, to stockholders of record July 3, 1953. Parke-Davis has more than 24,000 stockholders, none with as much as four percent of the 4,894,780 shares outstanding.

The 86-year-old firm, a leader in the ethical drug industry, first began paying dividends in 1878 and has made a profit every year since 1870. Only four other industrial companies listed on the New York Stock Exchange have longer records of consecutive dividend payments than Parke-Davis.

DR. ARTHUR H. KEENEY, LOUISVILLE, KENTUCKY WINNER 1953 MISSISSIPPI VALLEY MEDICAL SOCIETY ESSAY CONTEST

Arthur H. Keeney, M.S., M.D., Clinical Instructor in Ophthalmology, University of Louisville, is the winner of the 13th Annual Essay Contest, Mississippi Valley Medical Society, "for the best unpublished essay on a subject of practical and applicable value to the general practitioner of medicine." Dr. Keeney's paper is entitled "Grass Roots in the Prevention of Blindness." Second prize goes to Dr. Louis T. Palumbo, Chief, Surgical Service, Veterans Administration Center, Des Moines, Ia., for his paper "Physiological Changes of the Upper Gastrointestinal Tract Following Combined Upper Gastrectomy and Vagus Resection." There was a tie for Third Prize—Dr. A. Henry Clagett, Jr., of the Veterans Administration Hospital, Wilmington, Dela., for his paper, "Some Common Complications of Myocardial Infarction" and Dr. Walter M. Block of Cedar Rapids, Iowa, for his paper "Infant Feeding with Homogenized Milk." Dr. Keeney will receive a cash award, a gold medal, a certificate of award and will present his essay at the 18th Annual Meeting, Mississippi Valley Medical Society, Springfield, Ill., Sept. 24. His paper will appear in the January 1954 issue of the Mississippi Valley Medical Journal (Quincy, Ill.)

ANNUAL CATALOG OF MEDICAL LITERATURE PUBISHED BY ARMED FORCES MEDICAL LIBRARY AND LIBRARY OF CONGRESS

The annual *Armed Forces Medical Library Catalog* for 1952, containing reproductions of catalog cards for medical works cataloged by the Armed Forces Medical Library during the calendar year 1952, has been published jointly by the Library of Congress and the Armed Forces Medical Library. The 813-page volume is the fifth in a series started in 1948 and comprises a supplement to the *Library of Congress Catalog*.

This *Armed Forces Medical Library Catalog* in book form is a convenient medical bibliography, just as the *Library of Congress Catalog* is a bibliography of literature in other fields. Scholars and libraries throughout the world rely on these catalogs as comprehensive sources of information. Together with the *Current List of Medical Literature*, the *Armed Forces Medical Library Catalog* serves as a continuation of that library's biblio-

graphical record begun in 1880 with the advent of the *Index-Catalogue of the Library of the Surgeon General's Office.*

The 1952 *Armed Forces Medical Library Catalog*, previously entitled *Army Medical Library Catalog*, contains complete author and subject sections. And this catalog has been expanded to include all titles of medical interest, as compared to previous volumes, which were limited to titles classified in the Army Medical Library's classifications QS-QZ and W (preclinical and clinical medicines) and the Library of Congress classifications UH and VG (military medical services).

The *Armed Forces Medical Library Catalog* is produced by photoreproduction of catalog cards. Each entry thus contains complete bibliographical data, including the author and title, publisher, number of pages, and date of publication for each work.

The cataloging work is done by the Armed Forces Medical Library staff and catalog cards are produced by the Card Division of the Library of Congress. The catalog cards themselves are added to the card catalogs of the Armed Forces Medical Library and are sold by the Library of Congress to other libraries.

The first issue of the Army Medical Library's catalog in book form contained only an arrangement of entries by author and was called *Army Medical Library Catalog Cards, April-December, 1948.* It was issued as a bound-in supplement to the Library of Congress *Cumulative Catalog* for 1948. Beginning in 1949 the supplement was bound separately, and in the 1950 volume, a subject index to the works was included.

In the 1951 volume a complete subject as well as an author section was included for the first time. This proved a distinct advantage to users, so one was included in the 1952 volume. It enables anyone interested in a specific subject, such as antibiotics, diagnosis, Hodgkin's disease, poliomyelitis, or psychosurgery, for examples, to find both recent and older works on that particular subject in one place in the subject section of the catalog.

Although the 1952 catalog contains considerably more information than the previous volumes, improved production techniques, including the use of a four- rather than a three-column format, have made it possible to sell the catalog for the same price—$17.50 a copy—as the 1950 and 1951 volumes. The 1952 *Armed Forces Medical Library Catalog* and previous volumes may be purchased from the Card Division, Library of Congress, Washington 25, D. C.

DIODRAST TERMED CHOICE AGENT IN STUDYING FETAL PHYSIOLOGY

Amniography with 70 per cent solution of Diodrast as the contrast medium provides more valuable information on fetal physiology, without systemic reaction, than any other known method of examination, according to Dr. Eugene M. Savignac, Detroit, Michigan. He writes in *Radiology* (60:545, April 1953).

In a comprehensive paper on roentgen amniography, Dr. Savignac reports on the effectiveness of this technique in providing important information concerning the status of pregnancy. Fetal soft-tissue abnormalities, fetal gastrointestinal activity, fetal life or death, malformations in the lumen or walls of the uterus and placental implantation can be determined by this technique. At the same time maternal excretory urography is made possible. The knowledge obtained of certain conditions cannot be diagnosed clinically or by other radiographic means, he states.

A significant finding in the study of 10 pregnant women at Holy Cross Hospital in Detroit, he adds, is that amniography with 70 per cent Diodrast was harmless to mother and fetus and "did not seem to induce labor."

He describes the technique as a method of obstetrical diagnosis involving transcutaneous puncture of the uterus through the maternal abdominal wall to inject varying quantities of diodrast into the amniotic cavity. The amount of Diodrast injected depends upon the quantity of amniotic fluid. In general clinical practice amniography is done in the last three months of pregnancy, although it has been used earlier experimentally, he notes.

The radiologist is able to detect gross abnormalities of fetal soft tissues appearing as negative shadows in the opaque amniotic fluid. Fetal sex might thus be detected before birth, Dr. Savignac says. Every live fetus swallows the injected Diodrast, which appears in its digestive tract, and failure of swallowing "presumably indicates fetal death."

The contrast agent is eliminated by the maternal urinary tract, providing an excretory program about three hours following uterine puncture, the author continues. In addition, placental implantation is shown "very definitely" at any stage of pregnancy and with any position or presentation of the fetus.

DR. EUGENE H. PAYNE, BACK FROM 38,000-MILE TOUR, REPORTS MALARIA REMAINS WORLD'S BIGGEST MEDICAL, ECONOMIC PROBLEM

Detroit.—Just back from a 38,000-mile, six-month survey of progress in tropical medicine, Dr. Eugene H. Payne of Parke, Davis & Company reported here that "malaria remains the biggest medical and economic problem in the world today."

The famed clinical investigator, who has made 24 trips abroad and crossed the equator 32 times in the last 23 years on medical missions, said:

"Malaria causes more sickness and death than any other disease. Every year, approximately 350 million people suffer from malaria—and at least three and a half million die."

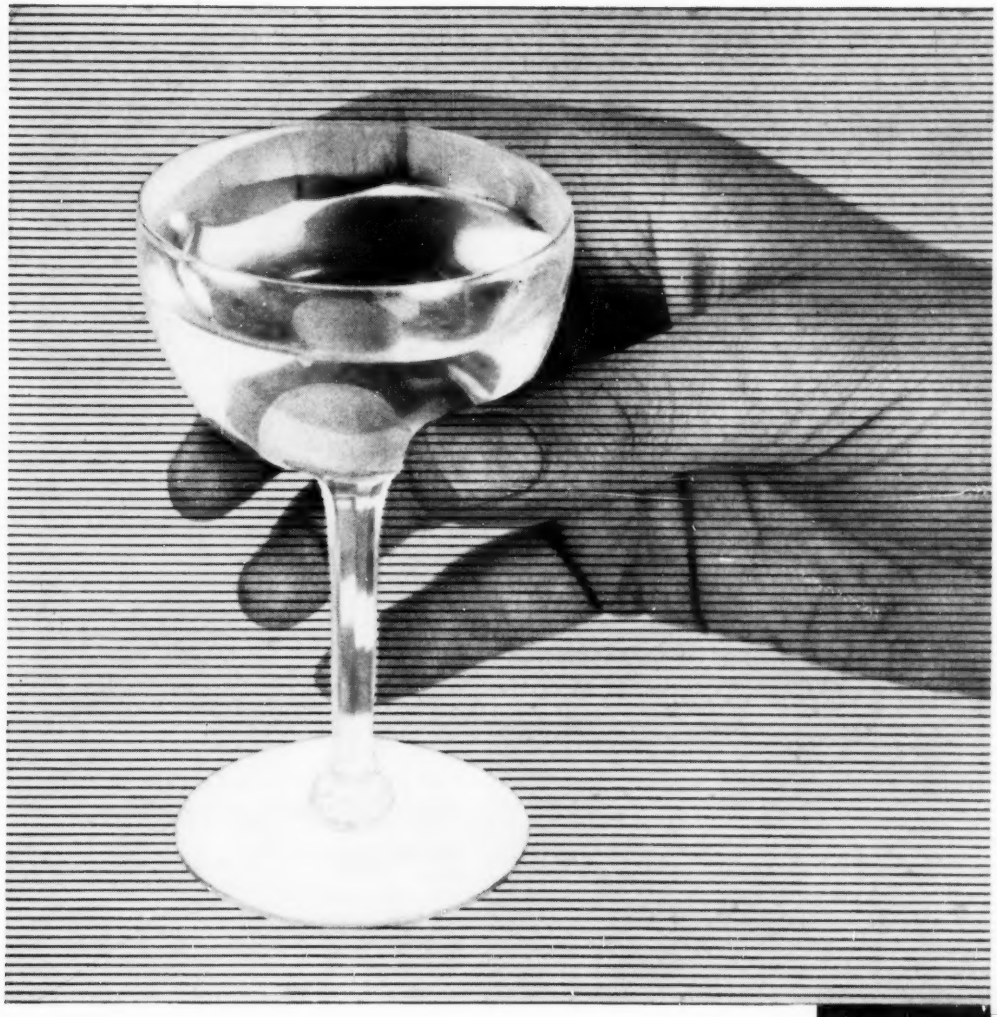
He explained that control measures reduce malaria, but seldom eradicate it.

"History shows," Dr. Payne pointed out, "that malaria is capable of breaking through all controls, with resulting epidemics."

This, he went on, may be due to climatic change, or to the appearance of a new vector—an insect that carries microorganisms from a sick person to somebody else. The new vector is immune to the control measures, because of different breeding and biting habits.

Conferred with Several Hundred Scientists

Dr. Payne visited 30 different research centers and conferred with several hundred scientists during



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New malaria epidemics, he said, sometimes occur in areas where controls — such as insecticides, screening, oiling and D.D.T.—had almost eliminated the disease. More deaths often result there than before the use of controls.

"Following years of protection from malaria, a person's partial immunity seems to drop below the safety point," he explained.

He told of one remote area which had been noted for its malaria control. The disease appeared to be cleaned up. Yet, a few months ago, an epidemic of "almost unbelievable proportions" broke out.

"It will never be known how many died during that epidemic," Dr. Payne said. "In November and December of last year and January of this year, there was unusual rainfall, with unusual winds. Humidity, which determines the life of insecticide spray, was high. The higher the humidity, the less time the spray remains effective. Thus, in this instance, unusual climatic conditions were responsible for the epidemic."

He said suppressive drugs are still an integral part of any control program—and are vital in halting an epidemic break-through.

Described Amebiasis as Another Big Problem

Another tremendous medical and economic problem, Dr. Payne said, is amebiasis—commonly known as amebic dysentery.

"There is still no satisfactory answer to this problem," he explained. "Amebiasis is spreading into new areas, despite all improvements made in sanitation."

A new drug, he declared, is needed to clean up "carriers" and should have these four characteristics: It must be cheap enough for mass treatment. It must be fully effective. The treatment period should be short. And the drug should be safe even in unskilled hands.

Dr. Payne is one of the few men in the world with the job of overseas clinical investigator. Before new medicines are introduced for use by physicians, a clinical investigator studies their effectiveness in human beings. Dr. Payne has received many honors, including the Bolivian Order of the Condor of the Andes—highest non-military award ever bestowed by that country on a foreigner.

He left the United States early in January on his latest trip, going first to Brazil. From there, during the subsequent six months, he proceeded to Dakar, Liberia, Belgian Congo, South Africa, Mozambique (Portugese East Africa), Durban, Kenya, Egypt, Pakistan, India, Ceylon, Bangkok, Hongkong, Manila, Hawaii and back to Detroit, where the home laboratories of Parke, Davis & Company are located.

EATON LABORATORIES, INC.

Eaton Laboratories, Inc., Norwich, New York, announces the appointment of Boris Anzlowar as assistant to the medical editor, Dr. R. J. Main. The new member of the Eaton staff has a fluent command of German, French, Italian, Russian, Croatian and Spanish and, in addition, has had long experience in medical translating, editorial work, abstracting and research.

Born in Trieste in 1923, Mr. Anzlowar received his preliminary education in Italy and also in Yugoslavia where he subsequently studied in the medical faculty of the University of Ljubljana. After being interned in World War II, he was employed after 1945 as chief sanitarian for United Nations refugee camps in southern Italy. He then worked in Milan on a free-lance basis as medical copy consultant for several Italian producers of pharmaceuticals for export.

Since his arrival in the United States four years ago, Mr. Anzlowar has been associated with several large New York advertising agencies handling ethical pharmaceutical accounts and has free-lanced as a medical translator. At the same time he studied mycology at Columbia University.

Mr. Anzlowar is married and his wife joined him in Norwich the early part of July.

NEW ORLEANS BRANCH MANAGER FOR PARKE-DAVIS, E. A. KIMZEY, RETIRES AFTER 41 YEARS SERVICE

Retirement of Earl A. Kimzey, a veteran of 41 years in the field sales organization of Parke, Davis & Company, was announced recently.

Kimzey, who for the past seven years has been New Orleans branch manager, retired July 1, according to Graydon L. Walker, Parke-Davis vice president and director of U. S. and Canadian sales and promotion.

Born in Union City, Tenn., June 1, 1888, Kimzey took his elementary education in Union City and then studied pharmacy at home while working for a retail druggist.

He joined Parke-Davis in 1912 as a salesman in the Mississippi-Delta area and, four years later, was transferred to Nashville, Tenn., where he was in charge of sales for that region.

In 1921, he was promoted to field manager for the Chicago branch and, during the next five years, held similar posts for the New Orleans and St. Louis branch offices.

Kimzey was promoted to assistant manager of the New Orleans branch in 1926 and, two years later, was named manager—a post he held seven years. In 1935, he was transferred to Chicago as branch manager.

Eleven years later, Kimzey returned to New Orleans as manager, the position he held until his retirement.

Married, with one daughter, Kimzey lives at 4433 St. Anne, New Orleans.

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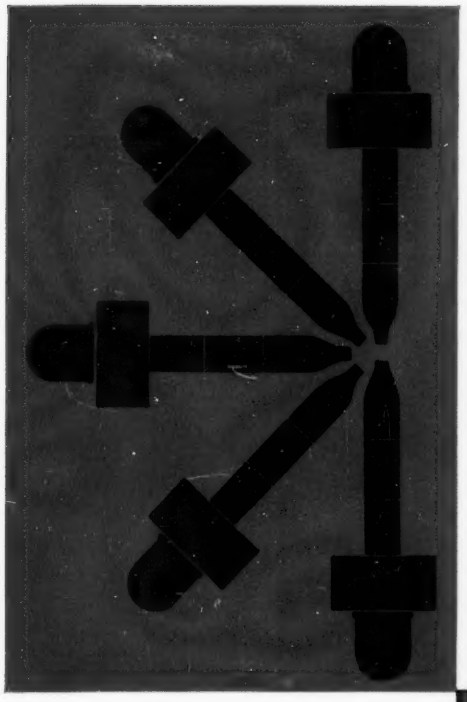

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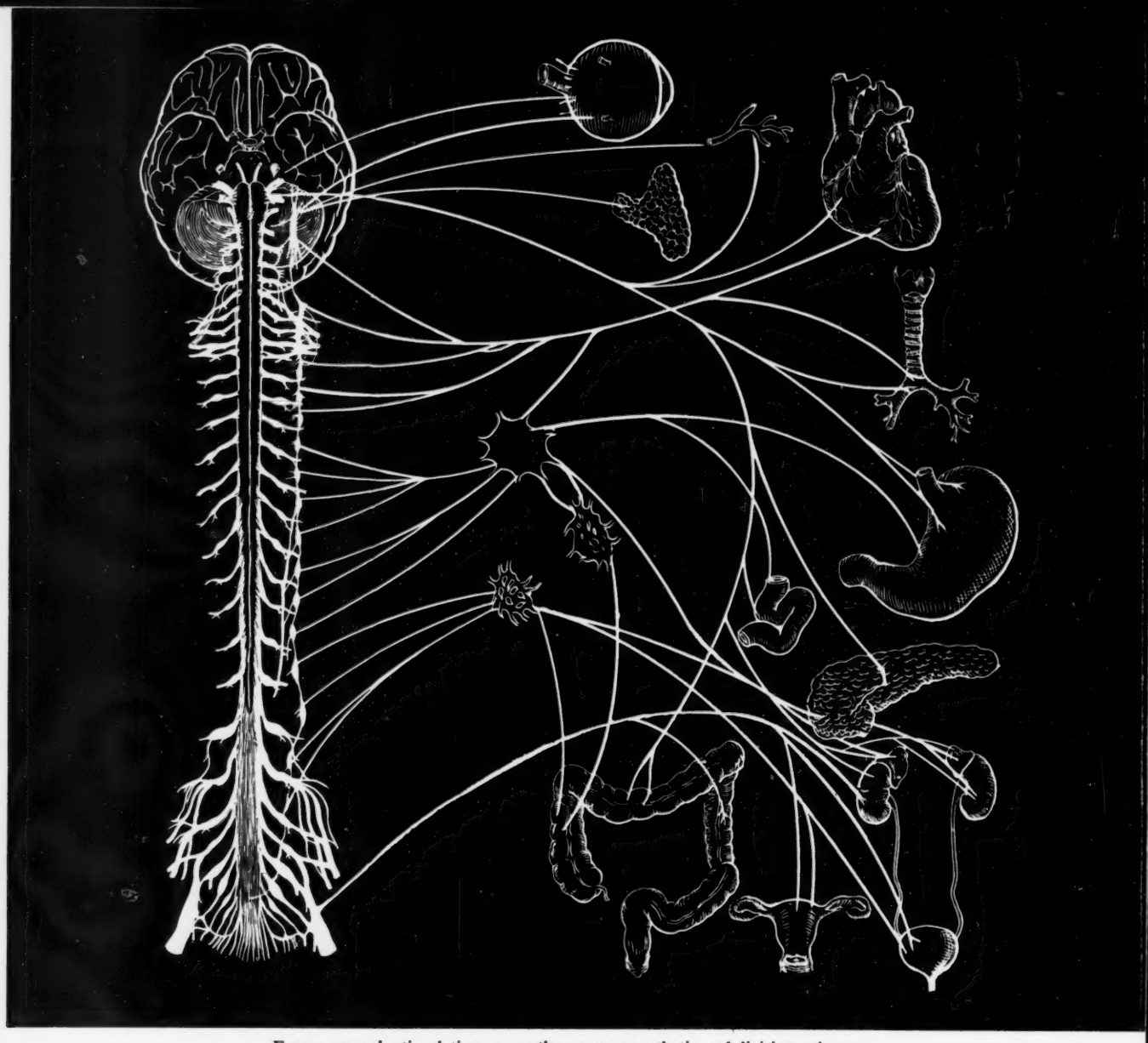

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